Orchids of Guatemala

A Revised Annotated Checklist

Margaret A. Dix and Michael W. Dix

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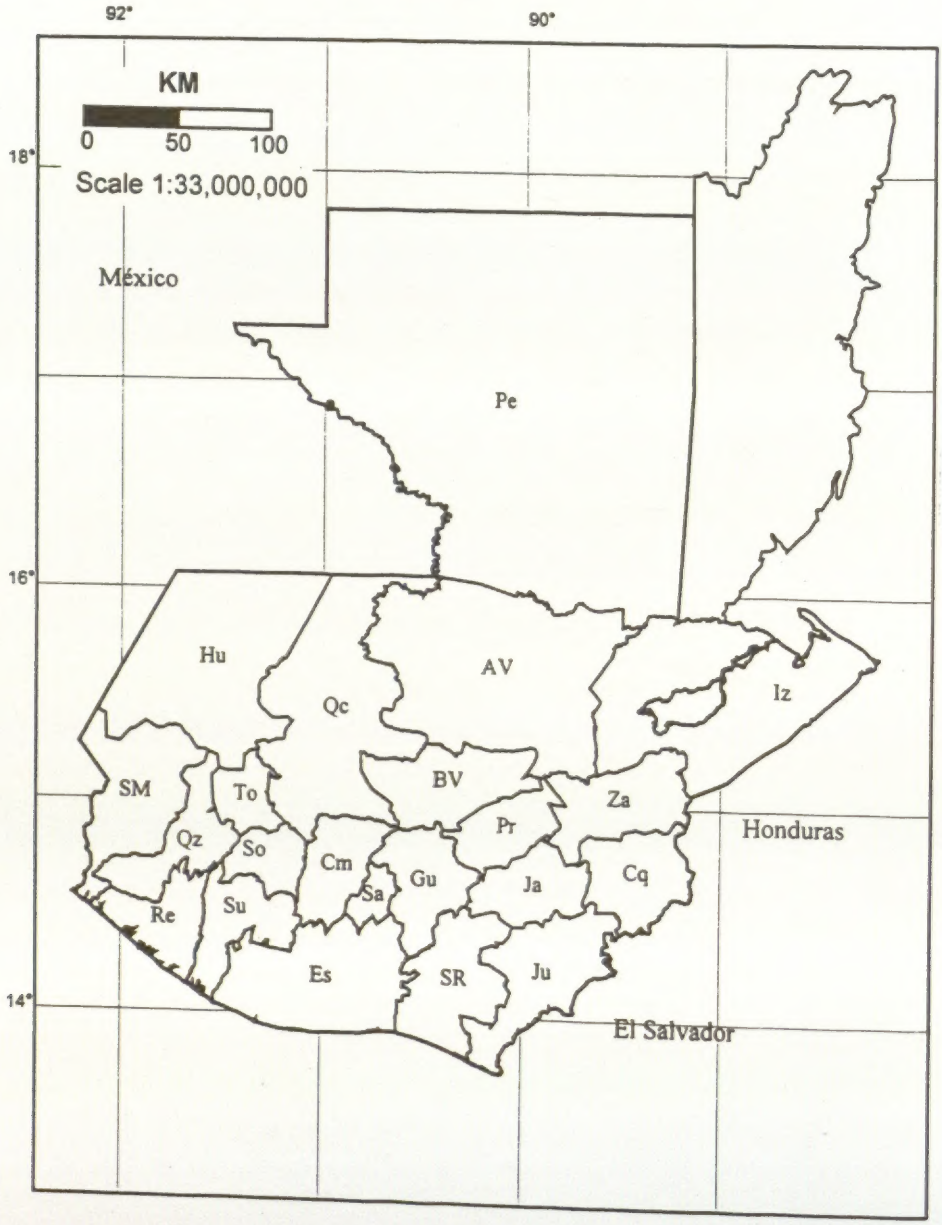
Departments in Guatemala are abbreviated as follows:

AV = Alta Verapaz
BV = Baja Verapaz
Cm = Chimaltenango
Cq = Chiquimula
Es = Escuintla
Gu = Guatemala
Hu = Huehuetenango
Iz = Izabal
Ja = Jalapa
Ju = Jutiapa
Pe = Petén
Pr = El Progreso
Qc = Quiché
Qz = Quetzaltenango
Re = Retalhuleu
Sa = Sacatepéquez
SM = San Marcos
So = Sololá
Su = Suchitepéquez
SR = Santa Rosa
To = Totonicapán
Za = Zacapa



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Cover illustration: *Lycaste skinneri* var. *alba* Dombrain, the national flower of Guatemala. Photo by Otto Tinschert.

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ABSTRACT

This study represents a compilation of all currently recognized species of orchids known from Guatemala. Species are listed in alphabetical order, together with synonyms or species names used in older treatments, and their geographic, elevational, and habitat distribution in the country are described. Where identification of species new to Guatemala may be difficult, distinguishing characters are briefly described. The list, based on extensive field collections and herbarium material, includes 734 taxa of which 207 new records or recently described species were not reported in earlier studies.

RESUMEN

Este estudio es una compilación de todas las especies de orquídeas actualmente conocidas en Guatemala. Se presentan las especies en orden alfabético, con sus sinónimos o los nombres utilizados en tratamientos anteriores. Asimismo, se describen sus distribuciones geográficas, altitudinales y habitat dentro del país. Para facilitar la identificación de especies nuevas para Guatemala, no incluidas en tratamientos anteriores, se describe brevemente las características diagnósticas. La lista, basada en colecciones extensivas de campo y materia de herbario, incluye 734 taxa, de las cuales 207 son reportes de especies nuevas o recientemente descritas.

INTRODUCTION

Guatemala is a small country (108,889 km^2) that has a high species diversity due primarily to its high relief, varied soils, topography, and geological history. One finds mountain ranges up to 4220 m, coastal plains, volcanoes, and uplifted cordilleras. Within these areas the climate differs dramatically, from desert lowlands to tropical rain forests, to cool humid uplands with annual precipitations from less than 400 mm to more than 4000 mm. All contribute to a rich and varied flora. One of the best general descriptions of Guatemalan vegetation is still the one provided by Standley and Steyermark (1945).

Floristically, Guatemala is near the northern limits of several genera, such as *Podocarpus*, *Hedyosmum*, and *Chusquea*, and near the southern limits for others, such as *Acer*, *Juniperus*, and *Taxus*. Thus, many of its species are shared either with Mexico to the north or southern Central America to the south.

As in many other countries, Guatemala has suffered extensive deforestation with consequent loss of orchid habitat. Nevertheless, the volcanic slopes, down to and including older coffee plantations, and the Petén lowlands still support extensive tracts of vegetation. However, newer intensive coffee plantations with very little shade have eliminated many orchids from areas of former abundance. Two areas are noteworthy for their orchid diversity. The Sierra de las Minas, of which 2363 km^2 have been incorporated into a Biosphere Reserve, supports several life zones ranging from tropical thorn scrub with less than 400 mm of annual precipitation to upland pine and fir forest with over 3000 mm rainfall. This region includes parts of five Guatemalan Departments: Alta Verapaz, Baja Verapaz, El Progreso, Zacapa, and Izabal (for additional information see Dix, 1997). The second most diverse region includes the warm lowland forests of Alta Verapaz and the Petén in northern Guatemala. A large number of orchid species were originally found in Alta Verapaz, but the area has undergone extensive deforestation with a consequent loss of diversity. Fortunately, many species originally found here are being discovered in Zacapa and Izabal. The orchid flora in some regions, such as the Cuchumatanes and much of the volcanic slopes, is still not well known and would repay careful study.

Guatemalan orchid history began in 1834 when George Ure Skinner received a letter from John Bateman asking him to send orchids to England. The association of Skinner and Bateman resulted in the description and illustration of over 100 new species, among them *Cattleya skinneri* (the Costa Rican National Flower), *Rossioglossum grande*, *Lemboglossum uroskinneri*, and *Lycaste skinneri* (the

Guatemalan National Flower) (Bateman, 1838 to 1849). Skinner continued collecting orchids for 33 years. Other contributors included Julius von Warscewicz (1834–1839); Theodor Hartweg (1839) and Hermann Wendland (1857 and 1873), who collected on the volcanoes near Guatemala City; Gustav Bernouilli and Richard Cario (1864 to 1878), who collected on the Pacific slopes; and Hans Von Tuerckheim (1885 to 1901), who collected extensively in Alta Verapaz.

In the 20th century, collections were continued by Hans Von Tuerckheim II, Harry Johnson, Margaret Lewis, Alexander Skutch, and others, each contributing additional species, for the most part, from previously explored areas. Cyrus Lundell (1937) and his team carried out extensive studies in Petén that still serve as a basic reference. Paul Standley and Julian Steyermark culminated their extensive explorations during the 1940s with the publication of the *Flora of Guatemala*, of which Oakes Ames and Donovan Correll's *Orchids of Guatemala* (A & C) (1952, 1953) listed 542 taxa and was followed by Correll's supplement (1965), which listed 567 taxa. This series has been the standard orchid reference for Guatemala.

Nevertheless, over the past thirty years there has been a great increase in our knowledge of species distribution, numerous generic revisions, particularly of species shared by Mexico and Guatemala, and Hamer's publications on El Salvador (Hamer, 1974, 1981) and Nicaragua (Hamer, 1982 to 1985). As a result, over 40% of the species names published in A & C (1952, 1953) have changed and, moreover, a large number of additional species has been recorded for Guatemala. A preliminary list of Guatemalan species has recently been distributed by Mittelstaedt (1993). However, much new information is available concerning orchid distribution in Guatemala. For these reasons, this alphabetical list has been designed to assist both professionals and amateurs in naming Guatemalan species, in locating their descriptions, and in understanding their distribution. We hope it will facilitate continuing studies on Guatemalan orchids and correct nomenclatural usage. It will also be helpful to orchid growers, botanists in general, and those preparing inventories for protected areas. Illustrated keys are in preparation.

In general, the classifications used follow Dressler (1993), although for the Spiranthinae we have used the genera we consider most valid based on Garay (1982) and Burns-Balogh (1985). Although Higgins (1997, 1999) segregated the cockleshell *Encyclia* into the genus *Prosthechea*, we decided not to consider the group as having generic status at this time.

The material included here is based on our own collections and observations in Guatemala since late 1972; material seen by us in local collections; herbarium collections at the Universidad del Valle (UVAL); Facultad de Agronomía, Universidad de San Carlos (AGUAT); Escuela de Biología, Universidad de San Carlos (BIGUA); United States National Museum (US); Marie Selby Gardens (SEL); Missouri Botanical Garden (MO); the Royal Botanic Gardens, Kew (K); Escuela Agricola Panamericana Zamorano (EAP); Universidad Nacional Autonoma de México (UNAM); and Asociación Mexicana de Orquideólgia (AMO); as well as previously published literature reports, verified as far as possible by ourselves. Voucher specimens have been deposited at UVAL. In a few cases material is in cultivation, and no preserved material is yet available. Occasionally, a photograph has been substituted for a specimen.

This list includes 731 taxa, a 40% increase from the 527 orchid species recognized by A & C in 1952, 1953. We have excluded 41 taxa whose original inclusion in the Guatemalan orchid list we believe was based on erroneous geographic information. Orchids recorded to date only from Belize have not been included because they have already been covered by Catling and Catling (1988). At present, between 5 and 10 species are added annually.

Much of this would never have been written had it not been for the enthusiasm and curiosity of the members of the Guatemalan Orchid Association (AGO), which was founded in 1973, who always wanted to know the names of their orchids. In addition, the Alta Verapaz Orchid Association, formed in 1981, and the Baja Verapaz Orchid Association, founded in 1982, have been responsible for many interesting discoveries. Both of these societies have members who are especially interested in studying the orchid flora of their own departments and have contributed significantly to our knowledge of Guatemalan orchids.

Major threats for orchid conservation are colonization of natural areas and fires (6800 km^2 of forest were destroyed by fire in 1998). Orchids are protected in Guatemala through CITES, which is administered by the Guatemalan Protected Areas Commission (CONAP), responsible for issuing collecting and export permits, and by the Protected Areas and Wildlife Law. Up to now, rigid interpretation of the latter has prevented the development of widespread rescue operations and of projects that would promote sustainable use of orchid species. Local orchid societies are stimulating interest in culture and conservation.

HOW TO USE THIS LIST

The purpose of this list is to put together available information on the current names, distribution, and habitats of Guatemalan orchids. Species are listed in alphabetical order according to genus. The Ames and Correll (A & C) *Orchids of Guatemala* names are listed beside the currently recognized name, thus permitting the reader to locate the species description in A & C (1952, 1953) or Correll (1965). The letters included before each species name refer to its status as follows:

no letter: name unchanged from A & C.

C: new name changed from A & C, the authority on which the name change is based, and the A & C name are given.

O: old name used in A & C, changed or excluded in this list.

*: new record for Guatemala.

P: name used in Guatemala or Mesoamerica, although not in A & C.

Doubtful or unconfirmed species are listed in Appendix 1. Excluded species are listed in Appendix 2.

Following the letters noted above, the currently recognized species name is given followed by the taxonomic authority; literature citation for the species description if new to Guatemala, or if the name currently used differs from A & C; name used in A & C; species distribution according to the departments of Guatemala (see inside covers for abbreviations and locations); altitudinal range in Guatemala; growth habit: E (epiphyte), L (lithophyte), T (terrestrial). This is followed by a brief habitat description. Where necessary, clarifying notes include reasons for exclusion or separation into distinct species. For new Guatemalan records, specimen information is cited. In some cases, distinguishing characters are given for closely related species.

ACKNOWLEDGEMENTS

This study would not have been possible without the continued encouragement and contribution of material by members of the Guatemalan Orchid Association, the Alta Verapaz Orchid Association, and the Baja Verapaz Orchid Association. Suggestions, ideas, and advice were provided in different ways over the years by J. Atwood, C. Dodson, R. Dressler, E. Greenwood, E. Hágsater, F. Hamer, C. Luer, R. MacCullough, G. Salazar, M. A. Soto-Arenas, and C. Withner. Special appreciation is extended to O. Tinschert and M. Behar, pioneers in orchid photography and hybridization, whose vision is largely responsible for widespread Guatemalan interest in orchids. The Universidad del Valle de Guatemala provided support in many different ways. We thank Luis Carlos Castellanos for his patience and Mayra Maldonado for tracing obscure information. Finally, our children, Anne, William, and Robert, not only helped immeasurably but also accompanied us from a tender age, under all kinds of conditions, on our Guatemalan travels. To all we are most grateful.

ANNOTATED LIST

* ***Acineta barkeri*** (Bateman) Lindl., Bot. Reg. 29: Misc. 68. 1843. BV, Hu. 1400 m. E, humid, lower montane forest. Hu, frontier Guatemala-Mexico, Laguna Xalchueche, *O. Nagel 5527* (AMO).

* ***Acineta chrysantha*** (C. Morren) Lindl. & Paxton, Paxton's Fl. Gard. 1: 31. 1850. BV. 1500 m. E, lower montane rain forest. BV, bought Purulhá, 1500 m, Dec. 1974, *Dix 468* (UVAL), growing with *Rossioglossum williamsianum*; Purulhá, 6 Jan. 1976, *Dix 6815* (UVAL).

* ***Amparoa costaricensis*** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 284. 1923. Pr, Za. 1700 to 1800 m. E, humid forest, on oaks. Za, Planados de Margot, 1700 m, coll. Meng, flowered in cult. *Dix 6223* (UVAL); Za, above Río Hondo, 1750 m, 19 Apr. 1984, col. W. Dix, *Dix 4929* (UVAL).

Arpophyllum alpinum Lindl., Hu, Ja, Qz, SM, To. 2000 to 3600 m. E, cool oak-pine forest. Ja, Cerro Miramundo, 2400 m, 28 Sep. 1986, *M. W. Dix s.n.* (AMO); To, Los Encuentros, 2900 m, 8 Dec. 1977, *Dix 77-002* (UVAL).

C ***Arpophyllum giganteum*** Hartw. ex Lindl., Ann. Mag. Nat. Hist. 4: 384. 1840. As *A. spicatum*. AV, Hu, Iz, Pe, Qc, Re, Sa, Su, Za. 300 to 1800 m. E, dense, humid forest, generally low elevations. *A. spicatum* is a central Mexican species.

C ***Arpophyllum medium*** Rchb.f., Beitr. Orch. Cent. Amer. 89: 1866. As *A. alpinum* in part. AV, BV, Cq, Es, Ja, Ju, Pr, SM, Za. 1000 to 2100 m. E, humid mid-elevation forest. Za, above Río Hondo, 2100 m, 11 Dec. 1993, *M. W. & R. Dix 7360* (UVAL); Es, Volcán de Pacaya, 1 Dec. 1973, *Dix 6963* (UVAL).

O ***Arpophyllum spicatum*** La Llave & Lex., see *A. giganteum*.

Aspasia epidendroides Lindl., Es, SR. 300 to 500 m. E, sub-tropical dry forest.

C ***Aspidogyne stictophylla*** (Schltr.) Garay, Bradea 2: 204. 1977. *Erythrodes stictophylla*. AV, Hu. 800 to 1400 m. T, dense humid forest. Reddish leaves with a rectangular pattern; lip conspicuously constricted in the middle.

C ***Aspidogyne tuerckheimii*** (Schltr.) Garay, Bradea 2: 204. 1977. *Erythrodes tuerckheimii*. AV. 800 to 1500 m. T, dense humid forest. Leaves normally unmarked, smaller flowers, pilose sepals.

C ***Aulosepalum hemichreum*** (Lindl.) Garay, Bot. Mus. Leafl. 28: 298. 1980. *Spiranthes hemichrea*. BV, Pr, So, SR, Za. 700 to 1200 m. L, T, dry open areas.

C ***Aulosepalum pulchrum*** (Schltr.) Catling, Lindleyana 4: 185. 1989. *Spiranthes hemichrea* in part. So. 1000 to 1600 m. L, T, dry forest.

C ***Aulosepalum pyramidale*** (Lindl.) M. A. Dix & M. W. Dix, comb. nov. Basionym: *Spiranthes pyramidalis* Lindl., Genera & Sp. Orch. Pl. 472. 1840. AV, BV, Cm, Es, Gu, Sa, SR, Za. 1200 to 2300 m. T, dry, mixed oak-pine forest, open slopes and lava flows.

* ***Barbosella prorepens*** (Rchb.f.) Schltr., Repert. Spec. Nov. Regni. Veg. Beih. 15: 263. 1918. AV. Approx. 1000 m. E, very humid, warm forest. Near Chixoy, Jan. 1990, *Dix 8016* (UVAL).

C ***Barkeria lindleyana*** Bateman ex Lindl., Bot. Reg. 28: 2.1842. *Epidendrum lindleyanum*. Cm, Hu, Qc, SR. 1800 to 2500 m. E, cool, dry forest. Cm, near Esquipulas, epiphyte on pines, June 10, 1995, *J. Linares s.n.* (EAP); Hamer (1989) presented a drawing based on a Guatemalan specimen. This species, which was described from Costa Rica, is rare in

Guatemala. Records cited in A & C may be *B. spectabilis*.

C ***Barkeria obovata*** (C. Presl.) Christenson, Lindleyana 3: 221. 1988. *Epidendrum chinense*. AV, Es, Gu, Pe, Qz, So, SR, Za. 350 to 1700 m. E, open forest and hedgerows. Commonly known as *B. chinensis* (Lindl.) Thien.

C ***Barkeria skinneri*** (Bateman ex Lindl.) A. Rich. & Galeotti, Compt. Rend. Hebd. Séances Acad. Sci. 18: 505. 1844. *Epidendrum skinneri*. AV, Gu, Hu, Ja, Ju, Sa, SR. 1500 to 1700 m. E, especially on *Cupressus*.

C ***Barkeria spectabilis*** Bateman ex Lindl., Bot. Reg. 28: Misc. 43. 1842. *Epidendrum lindleyanum*. Hu, Qc, Sa, So, SR. 1800 to 3000 m. E, L, cool, dry, oak forest.

C ***Beloglottis costaricensis*** (Rchb.f.) Schltr., Beih. Bot. Centralbl. 37: 365. 1920. *Spiranthes costaricensis*. AV, Pe, Su. 0 to 1200 m. T, warm, dry to humid forest with marked dry season.

C ***Beloglottis mexicana*** Garay & Hamer, Orq. El Salvador 3: 58. 1981. *Spiranthes costaricensis* in part. AV, Pe. 0 to 1200 m. T, humid forest.

* ***Bletia campanulata*** La Llave & Lex., Nov. Veg. Descr. Orch. Opusc. 17. 1825. 1300 to 1500 m. Cm, Gu, Qc, Sa, Za. E, open, pine-oak forest. Cm, 1939–1941, *J. R. Johnston 1390* (EAP); Qc, 1955, *I. Aguilar s.n.* (EAP); Sa, 8000 ft., Aug. 1892, *W. C. Shannon 3669* (US).

Bletia gracilis Lodd., Za. 1500 to 2000 m. T, open, oak-pine forest. Above Río Hondo, Za, 1300 m, 15 Sep. 1994, *M. Maldonado & Dix 7516* (UVAL). Differs from *B. edwardsii* in having narrower leaves and differently shaped lip.

* ***Bletia jucunda*** Linden & Rchb.f., Bonplandia 3: 221. 1855. As *B. reflexa*. Cm, Gu, Hu, Ja, Pr, Sa, SR, To, Za. 1600 to 2000 m. T, pine-oak forest. Hu, road between Huehuetenango and Uspantan, 18 Oct. 1975, *Dix 578* (UVAL); Pr, Sierra de las Minas, 2100 m, 8 Dec. 1980, *Dix 6982* (UVAL); Za, Sierra de las Minas, Za, 1900 m, 14 Sep. 1981, *Dix 81-36* (UVAL).

C ***Bletia purpurata*** A. Rich. & Galeotti, Ann. Sci. Nat. Bot. sér. 3, 3: 23. 1845. *Crybe rosea*. BV, Cm, Cq, Gu, Hu, Ja, Pr, Qz, Sa, SM, SR, Su, To, Za. 1400 to 2500 m. T, humid forest, frequently on roadside banks.

Bletia purpurea (Lam.) DC., AV, BV, Cm, Cq, Es, Gu, Hu, Iz, Ja, Ju, Pe, Pr, Qc, Qz, Re, So, SR, Su, Za. 0 to 2000 m. T, open or semi-open areas, frequently on roadside banks.

Bletia roezlii Rchb.f., BV, Hu, Ja, Sa, SR, Za. 1500 to 2200 m. T, open pine-oak forest, clay soils.

O ***Bothriochilus*** Lem., see *Coelia* Lindl.

* ***Brachionidium folsomii*** Dressler, Orquideología 15: 154. AV. 900 m. E, warm, humid forest. AV, near Senahú, 1100 m, coll. Archila s.n., 7 Dec. 1995, *Dix 8040* (UVAL).

C ***Brachystele guayanensis*** (Lindl.) Schltr., Beih. Bot. Centralbl. 37: 373. 1920. *Spiranthes guayanensis*. Iz, Pe. 0 to 1200 m. T, grassy areas and open forest. Very small plant.

Brassavola cucullata (L.) R. Br., AV, Cq, Es, Iz, Ja, Ju, Pe, Pr, SR, Za. 200 to 1800 m. E, dry to humid forest.

* ***Brassavola grandiflora*** Lindl., Bot. Reg. 25: 16. 1839. Pe. 0 to 600 m. E, dry to humid forest. Cited by Siegerist (1984) (SEL); local specimens have been seen in cultivation.

Brassavola nodosa (L.) Lindl., Cq, Es, Hu, Iz, Pr, Qz, Re, SR, Za. 0 to 600 m. E, L, dry forest. Distinguished from *B. venosa*

by basally spotted lip, smaller flowers, longer, narrower claw, and terete leaves.

* ***Brassavola venosa*** Lindl., Bot. Reg. 26: t.39. 1840. Es, Re, SR. 0 to 600 m. E, dry forest, Pacific lowlands. SR, 1 km E of La Avellana, 10 m, 25 Mar. 1995, *Dix 7866* (UVAL). Differs from *B. nodosa* in having nearly flat, not terete leaves, slightly larger flowers with shorter claw, and raised veins on lip, which has erose margins.

C ***Brassia brachiata*** Lindl., in Benth. Pl. Hartweg. 94. 1842. *B. verrucosa* in part. BV, Za. 1500 to 1800 m. E, locally distributed in dry, oak forest. We have examined the type sheet for *B. brachiata* at the Lindley herbarium (K) and believe this is a good species, distinguishable by its large size (one-third larger than typical *Brassia verrucosa)*, well separated pseudobulbs, heart-shaped lip over 5 cm long. Sepals extremely elongated, 13 cm or more long, with black bars at base. Field populations contain both this species and *B. verrucosa* without introgression. *Dix 6934* (UVAL), Sierra de las Minas, Zacapa, 1750 m. Has been known for many years in Guatemala as *B. verrucosa* var. *grandiflora*.

Brassia caudata (L.) Lindl., AV, Pe. 0 to 1200 m. E, warm, humid forest.

Brassia maculata R. Br., Pe, SR. 0 to 750 m. E, warm, humid forest.

Brassia verrucosa Lindl., BV, Cm, Cq, Iz, Pr, Sa, So, SR, Su, Za. 1100 to 1800 m. E, oak-pine forest. It is possible that *B. aristata* Lindl., currently considered a synonym, is a good species, but further study is needed to confirm this.

Bulbophyllum aristatum (Rchb.f.) Hemsl., AV, Pe, Za. 0 to 1500 m. E, L, humid, broadleaf or open pine forest.

* ***Bulbophyllum jamaicense*** Cogn., Repert. Spec. Nov. Regni Veg. Beih 7: 122. 1909. BV. 1000 m. E, evergreen, humid forest. BV, near Salamá, 1000 m, 15 Sep. 1993, *Dix 8009* (UVAL). Plant less than 10 cm tall, small with slender spike. Only *Bulbophyllum* in Guatemala with small, clustered pseudobulbs; *B. solteroi* González T. is probably a synonym.

C ***Bulbophyllum oerstedii*** (Rchb.f.) Hemsl., Godm. Salv., Biol. Cent. Amer. Bot. 3: 213. 1883. *B. pachyrachis.* AV, BV, Cq, Pe, SR. 0 to 1300 m. E, L, humid to seasonally dry forest.

O ***Bulbophyllum pachyrachis*** (A. Rich.) Griseb., see *B. oerstedii*.

C ***Calanthe calanthoides*** (A. Rich.& Galeotti) Hamer & Garay, Orq. Salvador 1: 91. 1974. *Calanthe mexicana.* AV, BV, Cq, Hu, Ja, Pr, So, Su, Za. 1200 to 3500 m. T, humus of dense, humid forest.

O ***Calanthe mexicana*** Rchb.f., see *Calanthe calanthoides*.

Campylocentrum brenesii Schltr., AV. 0 to 1500 m. E, pastures and humid forest.

Campylocentrum fasciola (Lindl.) Cogn., Iz, Pe. 0 to 600 m. E, dense humid or dry forest. Species with vestigial leaves.

Campylocentrum micranthum (Lindl.) Rolfe, AV, Cq, Es, Iz, Ju, Pe, Re, SR, Su. 0 to 1350 m. E, trees and shrubs in humid forest.

Campylocentrum microphyllum Ames & Correll, SM, Su. 1500 to 1700 m. E, dense humid forest. Su, Volcán Atitlán, 1500 m, 29 June 1999, *S. Rodas 99-216* (UVAL).

* ***Campylocentrum pachyrhizum*** (Rchb.f.) Rolfe, Orchid Rev. 11: 246. 1903. Pe. 200 to 300 m. E, warm humid forest. Pe, near Tintal, 19 Feb. 1995, *M. W. Dix 7878* (UVAL).

* ***Campylocentrum porrectum*** (Rchb.f.) Rolfe, Orchid Rev. 11: 247. 1903. Pe, Pr. 200 to 800 m. E, open, warm, dry to humid

forest. Distinguished by paniculate inflorescence. Pe, near El Mirador, 300 m, high forest with ramon and chicozapote, 18 Feb. 1995, *M. W. Dix 7861* (UVAL); Pr, Río Los Plátanos, near Sanarate, 778 m, dry forest along river bank, 26 Mar. 1995, *M. W. Dix 7502* (UVAL).

Campylocentrum schiedei (Rchb.f.) Benth. ex Hemsl., AV, Es, Pe, SM. 0 to 1300 m. E, humid forest.

Catasetum integerrimum Hook., AV, BV, Cq, Es, Iz, Pe, Pr, Re, Sa, SM, SR. 0 to 1500 m. E, humid forest, plantations, fences.

O ***Catasetum russellianium*** Hook., see *Clowesia russelliana*.

Cattleya aurantiaca (Bateman ex Lindl.) P. N. Don, BV, Cq, Es, Hu, Gu, Pr, Qz, Sa, SR, Su, Za. 900 to 1650 m. E, humid forest especially on oaks and shade trees in coffee plantations.

Cattleya bowringiana Veitch, AV, BV. 800 to 1200 m. T, shade on limestone cliffs in dry oak forest.

O ***Cattleya deckeri*** Kraenzl., see excluded species.

Cattleya skinneri Bateman, Es, Gu, Ju, Re, SM, SR, Su. 0 to 1600 m. E, tropical or premontane, dry forest.

Cattleya × ***guatemalensis*** Moore, Es, Re, SM, SR, Su. 300 to 1650 m. E, humid and dry forest. Natural hybrid between *C. aurantiaca* and *C. skinneri*.

C ***Caularthron bilamellatum*** (Rchb.f.) R. E. Schult., Bot. Mus. Leafl. 18: 92. 1958. *Diacrium bilamellatum*. Iz, Pe, Su. 0 to 200 m. E, low elevation swamp forest.

Chondrorhyncha lendyana Rchb.f., AV, BV, Hu, Iz, Su, Za. 600 to 1700 m. E, trunks in wet forest.

O ***Chysis aurea*** Lindl., excluded species, see *Chysis laevis*.

Chysis bractescens Lindl., AV, Iz, Pe. 0 to 850 m. E, L, humid forest in limestone regions.

C ***Chysis laevis*** Lindl., Bot. Reg. 26, Misc: 61. 1840. As *Chysis aurea*. AV, BV, Cq, SM, Su. 200 to 1700 m. E, very humid, shady forest.

C ***Clowesia russelliana*** (Hook.) Dodson, Selbyana 1: 136. 1975. *Catasetum russellianum*. 300 to 1100 m. AV, BV, Cq, Iz, Pe, Pr, So, Su, Za. E, especially dead branches, trunks and fence posts.

* ***Cochleanthes flabelliformis*** (Sw.) R. E. Schult. & Garay, Bot. Mus. Leafl. 18: 324. 1959. AV, Su. 600 m. E, warm, humid forest. Su, 1974, K. Lind, photo *Dix 6818* (UVAL); AV, 1993, *F. Archila s.n.* photo (UVAL)

C ***Coelia bella*** (Lemée) Rchb.f., Walp. Ann. Bot. Syst. 6: 218. 1861. *Bothriochilus bellus*. AV, BV, Es, Gu, Iz, Za. 0 to 1300 m. T, E, humid forest.

C ***Coelia densiflora*** Rolfe, Kew Bull. 1906: 375. *Bothriochilus densiflorus*. AV, BV, Cq, Ja, Za. 900 to 1650 m. E, humid forest.

C ***Coelia guatemalensis*** Rchb.f., Walp. Ann. Bot. Syst. 6: 219. 1861. *Bothriochilus guatemalensis*. Es, Gu, Hu, Ja, So. 1700 to 3000 m. E, humid, montane forest.

C ***Coelia macrostachya*** Lindl., in Benth. Pl. Hartweg 92. 1842. *Bothriochilus macrostachyus*. AV, BV, Es, Gu, Hu, Ja, Ju, Qz, SM, Su, Za. 1200 to 2500 m. E, T, humid forest, especially pine, cypress, and oak.

Coelia triptera (Sw.) G. Don ex Steud., AV, Iz. 0 to 1200 m. E, very humid forest.

Comparettia falcata Poepp. & Endl., AV, BV, Cm, Cq, Es, Gu, Hu, Sa, SM, So, Su.

1000 to 2000 m. E, humid, often open, forest and scrub, on small branches.

* ***Corallorhiza bulbosa*** A. Rich. & Galeotti, Ann. Sci. Nat. Bot. sér 3, 3: 19. 1845. Cm. 2500 m. As *C. maculata* in part. T, oak pine forest. Distinguished from *C. maculata* by numerous small spots on lip and smaller mentum. Cm, Chichavac, 2500 m, Nov.–Dec. 1930, *Skutch 75* (AMES, US).

Corallorhiza macrantha Schltr., Hu, To. 2000 to 3700 m. T, coniferous forest.

Corallorhiza maculata Raf., Cm, Hu, Qz, So, Su. 2000 to 3700 m. T, pine-oak forest.

Corallorhiza odontorhiza (Willd.) Nutt., Cm, Pr, Za. 1400 to 3300 m. T, oak-pine forest.

C ***Coryanthes picturata*** Rchb.f., Bot. Zeit. (Berlin) 22: 332, 415. 1864. *C. speciosa* Hook., in part, an excluded species. AV, Iz, Pe. 0 to 1000 m. E, warm humid forest, often on rotting trunks.

O ***Coryanthes speciosa*** Hook., see *C. picturata*.

* ***Corymborkis flava*** (Sw.) Kuntze, Rev. Gen. Pl. 2: 658. 1891. AV. 1000 to 1500 m. T, very humid, shady forest. Yellow flowers, elongated anther. AV, Pansamalá, 1300 m, Sep. 1886, *H. Von Tuerckheim 1021* (US).

Corymborkis forcipigera (Rchb.f.) L. O. Williams, AV, Es, Iz, Pr, So, Su. 0 to 2000 m. T, humus, dense, moist, shady forest. White flowers, short, blunt anther.

Cranichis apiculata Lindl., AV, Cm, Cq, Gu, Ja, Qz, Sa, SR. 1400 to 2700 m. T, deep shade, oak-pine-cypress forest.

Cranichis ciliata (HBK) Kunth, AV, Cm, Es, Gu. 1000 to 2700 m. T, deep humus under dense shade.

C ***Cranichis cochleata*** Dressler, Bol. Ins. Bot. (Guadalajara) 5: 70. 1998. As *C. cucullata*. Hu. 1500 m. T, moss-covered areas in dry oak-pine forest. Hu, *Skutch 1642* (AMES).

O ***Cranichis cucullata*** Schltr., see *Cranichis cochleata*.

Cranichis diphylla Sw., AV. 1000 to 3000 m. T, L, on rocks or trunks in woods with deep mossy humus. Very rare.

Cranichis hieroglyphica Ames & Correll, Cq, Es, Gu, Sa. 1400 to 2400 m. T, humid forest.

O ***Cranichis mexicana*** (A. Rich. & Galeotti) Schltr., see *Ocampoa mexicana*.

Cranichis muscosa Sw., Su. 0 to 1600 m. T, humid areas near rivers.

O ***Cranichis schaffneri*** Rchb.f., see *Ponthieva schaffneri*.

Cranichis sylvatica A. Rich. & Galeotti, AV, Cq, Hu, Za. 1200 to 2500 m. T, humid soil, on rocks in pine, oak, and cypress forest.

Cranichis wageneri Rchb.f., AV, Cq. 900 to 1650 m. T, very humid forest in rocky barrancas.

O ***Crybe rosea*** Lindl., see *Bletia purpurata*.

Cryptarrhena guatemalensis Schltr., AV. 200 to 900 m. E, warm, humid forest.

Cryptarrhena lunata R. Br., AV, Iz. 200 to 900 m. E, warm, humid forest.

* ***Cyclopogon comosus*** (Rchb.f.) Burns-Bal. & E. W. Greenw., Orquídea (Mexico) 10: 92. 1986. BV, Hu. 900 to 1800 m. T, mid-elevation, evergreen forest on humid banks in dense shade. Hu, Nenton, 20 Sep. 1998, *Maldonado & Dix 9074* (UVAL).

C ***Cyclopogon elatus*** (Sw.) Schltr., Beih. Bot. Centralbl. 37: 387. 1920. *Spiranthes elata.* AV, Cm, Es, Gu, Qz, SM, To. 1500 to 3000 m. T, cool, humid forest.

C ***Cyclopogon nigricans*** (Schltr.) Schltr., Beih. Bot. Centralbl. 37: 391. 1920. As *Spiranthes cranichoides.* Pe. 0 to 500 m. T, dense, humid forest. Distinguished by divergent lateral sepals and subquadrate apical lip lobe. Pe, Cerro Cahui, Mar. 1994, *A. L. Escobar & E. Pöll s.n.* (UVAL).

C ***Cyclopogon prasophylloides*** (Garay) Mora-Retana & J. García, Brenesia 37: 80. 1992. *Spiranthes prasophylla* var. *cleistogama.* AV, Es. 0 to 1400 m. E, dense, humid forest.

C ***Cyclopogon prasophyllum*** (Rchb.f.) Schltr., Beih. Bot. Centralbl. 37: 393. 1920. *Spiranthes prasophylla.* AV, Gu, Iz, Pe, SM. 0 to 1300 m. E, rotten logs, dense, warm, humid forest.

C ***Cyclopogon violaceus*** Schltr., Beih. Bot. Centralbl. 37: 396. 1920. *Spiranthes llaveana* var. *violacea.* Cm, SM. Near 2000 m. T, grassy fields and open pine forest.

Cycnoches egertonianum Bateman, AV. 800 to 1200 m. E, dense, humid forest.

Cycnoches ventricosum Bateman, AV, Pe, SR. 0 to 1000 m. E, especially rotten trunks, dense tropical forest.

* ***Cypripedium dickinsonianum*** Hágsater, Orquídea (Mexico) 9: 204, 205. 1984. AV, BV, Qc, Hu. 1000 to 1500 m. T, open sunny slopes. Found in same habitat and area as *C. irapeanum*. AV, near San Cristobal Verapaz, 1000 m, May 1992, *M. Véliz 94.3829* (BIGU).

Cypripedium irapeanum La Llave & Lex., AV, BV, Cm, Gu, Hu, Qc, Sa, So. 1000 to 1500 m. T, rocky, generally limestone, hillsides in full sun.

C ***Cyrtopodium paniculatum*** (Ruiz & Pav.) Garay, Caldasia 8: 524. 1962. As *Cyrtopodium punctatum.* AV, BV, Pr, Es, Hu, Iz, Ju, Qc, Sa, So, Za. 0 to 1400 m. E, T, open, sunny, rocky areas.

O ***Cyrtopodium punctatum*** (L.) Lindl., see *C. paniculatum.*

O ***Diacrium bilamellatum*** (Rchb.f.) Hemsl., see *Caularthron bilamellatum.*

* ***Dichaea cryptarrhena*** Rchb.f. ex Kraenzl., Pflanzenr. 4, 50: 36. 1923. Qz. 1200 to 1300 m. E, humid, broadleaf forest. Simple stem, leaf blades more than 8 mm long, numerous veins on floral segments, column wings without lobes and narrow arching ligule. Qz, Volcán Zunil, 31 Jan. 1940, *J. A. Steyermark 35268* (F).

Dichaea glauca (Sw.) Lindl., AV, BV, Cq, Iz, Pr, Qc, Sa, Su, Za. 1000 to 2400 m. E, occasionally L, humid forest. Two forms are present, one cleistogamous from cooler, higher elevations, the other from mid-elevations with flowers that open fully.

Dichaea graminoides (Sw.) Lindl., AV, BV, SM. 1400 to 1700 m. E, dense, humid forest.

Dichaea hystricina Rchb.f., AV, Iz, Za. 0 to 1500 m. E, dense, warm, humid forest.

C ***Dichaea intermedia*** Ames & Correll, Bot. Mus. Leafl. 11: 72. 1973. As *Dichaea* × *intermedia*. AV, BV. 1000 to 1500 m. E, humid forest. Now considered a good species (Folsom, 1987). BV, Cerro Verde, Feb. 1980, *Dix 544a* (UVAL).

* ***Dichaea morrisii*** Fawc. & Rendle, J. Bot. 48: 107. 1910. AV, Iz. 800 to 1000 m. E humid forest. AV, near Finca Trece Aguas, 1000 m, Feb. 1980, *Dix s.n.*; Iz, 900 m, 2 July 1995, *M. W. Dix 7547* (UVAL).

O ***Dichaea muricata***(Sw.) Lindl., see excluded species and *Dichaea muricatoides.*

O ***Dichaea muricata* var. *neglecta*** (Schltr.) Kraenzl., see *Dichaea neglecta*.

C ***Dichaea muricatoides*** Hamer & Garay, Orq. El Salvador 1: 48. 1974. As *Dichaea muricata*. AV, BV, Es, Hu, Iz, Pe, Qc, Qz, Re, SM, So, Su. 50 to 1600 m. E, warm, humid forest.

C ***Dichaea neglecta*** Schltr., Beih. Bot. Centralbl. 36: 420. 1918. *Dichaea muricata* var. *neglecta*. AV, BV, Cm, Cq, Gu, Ja, Ju, Pr, Qz, Sa, Za. 1000 to 2300 m. E, L, dense, humid forest.

Dichaea panamensis Lindl., AV, BV, Cq, Hu, Iz, Su, Za. 300 to 1600 m. E, warm, humid forest.

Dichaea squarrosa Lindl., Cq, Es, Gu, Hu, Ja, Qz, SM, So, Su, Za. 1500 to 3800 m. E, humid forest, especially oak and pine.

* ***Dichaea suaveolens*** Kraenzl., Pflanzenr. 4, 50: 39. 1923. As *D. squarrosa* in part. BV, Es, Sa, So, Za. 1500 to 2500 m. E, L, humid forest, oak, pine, sweet gum. Differs from *D. squarrosa* in having a long narrow isthmus to the mid-lobe. Type specimen of *D. squarrosa* has a broad isthmus. Za, above Río Hondo, Sierra de las Minas, 2175 m, 19 July 1994, *Dix 7849* (UVAL).

Dichaea trichocarpa (Sw.) Lindl., AV, BV, Gu, Ju, Qc, Za. 1200 to 2400 m. E, L, humid forest.

* ***Dichaea trulla*** Rchb.f., Beitr. Orch. Centr. Amer. 104. 1866. Iz. 1000 m. E, dense, very humid, broadleaf forest. Iz, 13 Sep. 1999. *Dix 9222* (UVAL).

Dichaea tuerckheimii Schltr., AV, Iz, Za. 100 to 1200 m. E, L, very humid, warm forest among moss and *Selaginella*.

C ***Dichromanthus cinnabarinus*** (La Llave & Lex.) Garay, Bot. Mus. Leafl. 28: 314. 1980. *Spiranthes cinnabarina*. BV, Gu, Hu, Ja, Sa, Za. 1000 to 2400 m. T, open deforested slopes in oak and pine.

C ***Dimerandra emarginata*** (G. Mey.) Hoehne, Bol. Agric. (São Paolo) 34: 618. 1934. *Epidendrum stenopetalum*. Iz, Pe, Za. 0 to 800 m. E, warm, dry to humid, forest.

C ***Dracula pusilla*** (Rolfe) Luer, Selbyana 2: 196. 1978. *Masdevallia pusilla*. AV, BV, Su. 1100 to 2300 m. E, dense, humid forest.

* ***Dresslerella archilae*** Luer & Behar, Monogr. Syst. Bot. Missouri Bot. Gard. 57: 140. 1995. AV. 1000 m. E, very humid, warm, evergreen forest. AV, 1000 m, Archila s.n. flowered in cult., *Luer 17754* (MO).

* ***Dresslerella hispida*** (L. O. Williams) Luer, Selbyana 3: 4. 1976. AV. 900 m. E, very humid, warm, evergreen forest. AV, 900 m, *Archila s.n.*, photo Dix, 15 Sep. 1994 (UVAL).

* ***Dresslerella pilosissima*** (Schltr.) Luer, Selbyana 2: 185. 1979. AV. 1100 m. E, very humid, warm, evergreen forest. AV, Finca Trece Aguas, *Dix 1980* (UVAL).

C ***Dryadella guatemalensis*** (Schltr.) Luer, Selbyana 2: 207. 1978. *Masdevallia simula* in part. AV, Qc, Qz. 800 to 1000 m. E, warm, humid forest. Qc, San Luis Ixcán, 2 Mar. 1977, *Dix 524* (UVAL).

C ***Dryadella linearifolia*** (Ames) Luer, Selbyana 2: 208. 1978. *Masdevallia linearifolia*. AV, Iz, Pe. 200 to 1100 m. E, warm, humid, lowland forest. Readily distinguished vegetatively from *D. guatemalensis* by shorter leaves, less than 5 cm long.

O ***Elleanthus capitatus*** (R. Br.) Rchb.f., see *E. cynarocephalus*.

* ***Elleanthus caricoides*** Nash, Bull. Torrey Bot. Club 34: 119. 1907. AV, Iz, Pe, Qc. 500 to 1000 m. E, lowland, humid forest. Iz, 700 m, Nov. 1993, *M. W. Dix 7366*

(UVAL); Qc, San Luis Ixcán, 2 Mar. 1977, *Dix 7710* (UVAL).

C ***Elleanthus cynarocephalus*** (Rchb.f.) Rchb.f., Walp. Ann. Bot. Syst. 6: 476. 1876. *E. capitatus*. AV, BV, Cm, Cq, Hu, Iz, Ju, Sa, So, Su, Za. 1000 to 2400 m. E, T, humid forest.

C ***Elleanthus graminifolius*** (Barb. Rodr.) Løjtnant, Bot. Not. 129: 447. 1976. *E. linifolius*. AV, BV, Iz, Pe, Za. 0 to 1300 m. E, humid to very humid, warm forest.

* ***Elleanthus hymenophorus*** (Rchb.f.) Rchb.f., Walp. Ann. Bot. Syst. 6: 480. 1862. AV. 1000 to 1500 m. T, very humid forest. *E. curtii* Schltr. is a synonym that has been used in Guatemala. AV, near Coban, coll. Archila, flowered in cult., 1 Dec. 1994, *Dix 7484* (UVAL).

O ***Elleanthus linifolius*** C. Presl, see *E. graminifolius*.

Elleanthus poiformis Schltr., AV, BV, Iz, Pe. 0 to 1700 m. E, forest and pastures.

* ***Eltroplectris roseoalba*** (Rchb.f.) Hamer & Garay, Orq. El Salvador 1: 160. 1974. BV, Ja, Ju. 1200 to 1600 m. T, open slopes in humus. BV, near Salamá, 1200 m, Sep. 1985, coll. *Ramirez s.n.* (UVAL).

C ***Encyclia abbreviata*** (Schltr.) Dressler, Brittonia 13: 264. 1961. *Epidendrum abbreviatum*. AV. 300 m. E, rare in Guatemala. Type specimen of *E. prorepens* Ames, a synonym, is from Guatemala.

C ***Encyclia alata*** (Bateman) Schltr., Die Orchideen 207. 1914. *Epidendrum alatum* in part. AV, Iz, Pe. 0 to 600 m. E, warm, usually open, lowland forest.

P ***Encyclia amanda*** (Ames) Dressler & G. E. Pollard, see *Encyclia chloroleuca*.

C ***Encyclia ambigua*** (Lindl.) Schltr., Die Orchideen 208. 1914. *Epidendrum alatum* in part. BV, Cm, Cq, Sa, Za. 1500 to 1800 m. E, humid, oak forest.

* ***Encyclia asperula*** Dressler & G. E. Pollard, Orquídea (Mexico) 3: 272. 1973. AV. 200 to 750 m. E, warm, humid, lowland forest. AV, Playa Grande, *Lizama s.n.*, Mar. 1978 (UVAL); AV, Rio Sachichaj, 600 m, Feb. 1 1990, *Dressler 6156* (UVAL).

C ***Encyclia baculus*** (Rchb.f.) Dressler & G. E. Pollard, Phytologia 21: 436. 1971. *Epidendrum pentotis*. Cq, Es, Gu, Hu, Iz, Ja, Ju, Sa, SR, Su, To, Za. 800 to 1850 m. E, humid, evergreen to seasonally dry, forest.

* ***Encyclia belizensis*** (Rchb.f.) Schltr., Beih. Bot. Centralbl. 36: 471. 1918. *Epidendrum alatum* in part. Pe. 0 to 500 m. E, warm, humid forest. Pe, Tikal, 9 May 1960, *Contreras 921* (LL 228004).

C ***Encyclia boothiana*** (Lindl.) Dressler, Brittonia 13: 269. 1961. *Epidendrum boothianum*. Pe. 200 to 400 m. E, warm forest. Pe, between Aguada Tintal and Corozal, 17 Feb. 1995, *M. W. Dix 7863* (UVAL).

C ***Encyclia bractescens*** (Lindl.) Hoehne, Arq. Bot. (São Paulo) n.s. 2: 150. 1952. *Epidendrum bractescens*. AV, Cm, Iz, Pe, Pr, Qc, Za. 0 to 1100 m. E, dry, humid, lowland forest.

C ***Encyclia brassavolae*** (Rchb.f.) Dressler, Brittonia 13: 264. 1961. *Epidendrum brassavolae*. AV, BV, Cq, Iz, Ja, Pr, Za. 1000 to 1800 m. E, T, very humid forest.

C ***Encyclia campylostalix*** (Rchb.f.) Schltr., Repert Spec. Nov. Regni Veg. Beih. 17: 45. 1922. *Epidendrum campylostalix*. AV. 1000 to 1800 m. E, humid, warm forest. Rare.

* ***Encyclia ceratistes*** (Lindl.) Schltr., Repert. Spec. Nov. Regni Veg. Beih. 6: 74. 1919. AV, BV. 1000 to 1600 m. E, humid, dense,

broadleaf forest. AV, coll. Mittelstaedt s.n., flowered in culture, 14 Sep. 1992, *Dix 6985* (UVAL); BV, near Purulhá, 1600 m, *Dix 7525* (UVAL).

C ***Encyclia chacaoensis*** (Rchb.f.) Dressler & G. E. Pollard, Phytologia 21: 436. 1971. As *Epidendrum ionophlebium* AV, BV, Cq, Es, Qz, SR, Su, Za. 400 to 1400 m. E, oak or pine-oak forest.

* ***Encyclia chloroleuca*** (Hook.) Neumann, Rev. Hortic. 2,4: 138. 1845, 1846. AV, Za. 600 to 800 m. E, warm, very humid, evergreen forest. AV, coll. Mittelstaedt, in flower Feb. 1991, *Dix 6688* (UVAL). This has been known as *Encyclia amanda* (Ames) Dressler & G. E. Pollard.

C ***Encyclia chondylobulbon*** (A. Rich. & Galeotti) Dressler & G. E. Pollard, Phytologia 21: 436. 1971. *Epidendrum chondylobulbon.* AV, BV, Cq, Gu, Hu, Ju, Pr, Sa, Su, To, Za. 1100 to 2600 m. E, humid forest.

C ***Encyclia cochleata*** (L.) Lemée, Fl. Guyane Française 1: 418. 1955. *Epidendrum cochleatum.* AV, BV, Cq, Gu, Hu, Iz, Ju, Pe, Pr, Qc, Qz, Re, Sm, SR, Su, Za. 0 to 1800 m. E, T, dry to humid forest.

C ***Encyclia cordigera*** (HBK) Dressler, Taxon 13: 247. 1964. *Epidendrum atropurpureum.* Cq, Es, Ju, Pe, Qz, Re, Sa, SM, SR, Su. 0 to 1000 m. E, seasonally dry, warm forest.

* ***Encyclia dickinsoniana*** (Withner) Hamer, Orch. Nicaragua pl. 1215. 1985. *Epidendrum oncidioides* in part. Pr, Za. 800 to 1100 m. E, very dry forest. Za, near Gualán, 17 Dec. 1985, *Dix 7206* (UVAL).

C ***Encyclia diota*** (Lindl.) Schltr., Beih. Bot. Centralbl. 36: 472. 1918. *Epidendrum selligerum* in part. Cq, Za. 600 to 1100 m. E, T, dry, lowland forest.

* ***Encyclia distantiflora*** (A. Rich. & Galeotti) Dressler & G. E. Pollard, Phytologia 21: 437. 1971. AV. 600 m. E, warm, humid, evergreen forest. Exhibited at Guatemala Orchid Show, Feb. 1994, *Dix 7439* (UVAL).

C ***Encyclia glauca*** (Knowles & Westc.) Dressler & G. E. Pollard, Phytologia 21: 437. 1971. *Epidendrum limbatum.* AV, BV, Cq, Pr, SR, Za. 1200 to 2100 m. E, open forest, pine-oak or oak.

C ***Encyclia gravida*** (Lindl.) Schltr., Beih. Bot. Centralbl. 36: 472. 1918. *Epidendrum oncidioides* var. *gravidum.* Pe. E, warm humid forest. 1000 m. Very rare.

C ***Encyclia guatemalensis*** (Klotzch) Dressler & G. E. Pollard, Phytologia 21: 437. 1971. *Epidendrum oncidioides.* BV, Pe, Pr, Za. 300 to 1000 m. E, very dry forest, often on cactus.

* ***Encyclia hanburyi*** (Lindl.) Schltr., Die Orchideen 209. 1914. BV, Za. 1500 to 1800 m. E, L, dry, oak forest. BV, near Purulhá, 18 Aug. 1974, *Dix 162* (UVAL).

C ***Encyclia incumbens*** (Lindl.) Mabb., Taxon 33: 443, 444. 1984. *Epidendrum aromaticum.* AV, BV, Cq, Es, Iz, Ja, Ju, Pe, Pr, Qz, Re, SM, Su, SR, To, Za. 200 to 1750 m. E, deciduous, oak forest.

C ***Encyclia livida*** (Lindl.) Schltr., Beih. Bot. Centralbl. 36: 472. 1918. *Epidendrum condylochilum.* 100 to 1800 m. AV, BV, Cq, Gu, Hu, Iz, Ja, Ju, Pe, Pr, SR, Za. E, warm, humid forest.

C ***Encyclia luteorosea*** (A. Rich. & Galeotti) Dressler & G. E. Pollard, Phytologia 21: 437. 1971. *Epidendrum luteoroseum.* AV, BV, Cq, Gu, Ju, Pr, SM, SR, Za. 400 to 1200 m. E, very dry forest, often on cactus.

* ***Encyclia maculosa*** (Ames, F. T. Hubb. & C. Schweinf.) Hoehne, Arq. Bot. Est. São Paolo n.s. 2: 152. 1952. Hu, Qz. 1200 m. E, dry, oak-juniper forest. Hu, 19 km north of Nenton, 19 Sep. 1998, *M. W. Dix 8898* (UVAL).

C ***Encyclia michuacana*** (La Llave & Lex.) Schltr., Beih. Bot. Centralbl. 36: 472. 1918. *Epidendrum virgatum*. AV, BV, Cq, Gu, Hu, Ja, Ju, Pr, To, Za. 1200 to 2100 m. T, oak-pine forest.

C ***Encyclia nematocaulon*** (A. Rich.) Acuña, Cat. Desc. Orq. Cub. 77. 1939. *Epidendrum xipheres*. BV, Cq, Gu, Pr, Sa, Za. 300 to 1500 m. E, dry to very dry forest.

C ***Encyclia neurosa*** (Ames) Dressler & G. E. Pollard, Phytologia 21: 437. 1971. *Epidendrum neurosum*. AV, Za. 800 to 1200 m. E, very humid forest. Za, Gualán, 800 m, Apr. 1984, *Dix 7363* (UVAL).

C ***Encyclia ochracea*** (Lindl.) Dressler, Brittonia 13: 265. 1961. *Epidendrum ochraceum*. AV, BV, Cm, Cq, Es, Gu, Hu, Ja, Ju, Qc, Qz, Re, Sa, SM, SR, So, Su, Za. 200 to 3000 m. E, widely distributed.

C ***Encyclia panthera*** (Rchb.f.) Schltr., Beih. Bot. Centralbl. 36: 473. 1918. *Epidendrum ochraceum* in part. Cm, Sa, So. 1200 to 1500 m. E, dry, oak forest.

* ***Encyclia papillosa*** (Bateman ex Lindl.) Aguirre-Olav., Orquídea (Mexico) 10: 387. 1987. As *Epidendrum adenocarpum* in part. Es, Pr, Re, SR, Za. 100 to 1000 m. E, dry to very dry forest.

C ***Encyclia polybulbon*** (Sw.) Dressler, Brittonia 15: 265. 1961. *Epidendrum polybulbon*. AV, BV, Cm, Cq, Es, Gu, Hu, Iz, Pe, Pr, Qc, Qz, Re, SR, To, Za. 600 to 2900 m. E, L, humid forest.

C ***Encyclia pseudopygmaea*** (Finet) Dressler & G. E. Pollard, Orquídea (Mexico) 10: 310. 1974. *Epidendrum pygmaeum* in part. AV, BV, Gu, Ja, Ju, Pr, Sa, So, Su, Za. 1400 to 2700 m. L, E, cloud forest. Distinguished from *E. pygmaea* by smaller lateral lobes, longer, narrower midlobe to lip, and longer pseudobulbs.

C ***Encyclia pygmaea*** (Hook.) Dressler, Brittonia 13: 265. 1961. *Epidendrum pygmaeum*. AV, BV, Hu, Iz, Pe. 0 to 1800 m. L, E, humid forest, generally warmer and at lower elevations than *E. pseudopygmaea*.

C ***Encyclia radiata*** (Lindl.) Dressler, Brittonia 13: 265. 1961. *Epidendrum radiatum*. AV, BV, Cm, Cq, Es, Gu, Iz, Ju, Pe, Pr, Qc, Sa, SR, Za. 100 to 2000 m. E, L, oak-pine or lowland, evergreen and dry to humid forest.

* ***Encyclia rhynchophora*** (A. Rich. & Galeotti) Dressler, Brittonia 13: 265. 1961. AV, BV, Pr, Za. 1500 to 1900 m. E, pine and oak-pine forest. Za, Sierra de las Minas, 1900 m, 30 Apr. 1990, *Dix 6871* (UVAL); BV, Unión Barrios, 1500 m, 10 May 1976, *Dix 4235* (UVAL).

C ***Encyclia selligera*** (Lindl.) Schltr., Die Orchideen 21. 1914. *Epidendrum selligerum* in part. BV, Cm, Cq, Es, Gu, Ja, Pr, To, Za. 1300 to 2000 m. E, open pine, cypress or oak forest.

C ***Encyclia tuerckheimii*** Schltr., Beih. Bot. Centralbl. 36: 472. 1918. *Epidendrum tuerckheimii* (Schltr.) Ames. AV, BV, Es, Gu, Hu, Ju. 1200 to 1600 m. E, very humid, deciduous forest.

* ***Encyclia vagans*** (Ames) Dressler & G. E. Pollard, Phytologia 21: 438. 1971. Es, Gu. 1400 m. E, pine-oak forest. Es, exhibited at Guatemala Orchid Show, Feb. 1994, col. Mittelstaedt s.n., flowered in cult, *Dix 7422* (UVAL); Guatemala, 1 Jan. 1886, *Bernouilli 362* (BR); Es, 2.5 km NE Volcán Pacaya, 1850 m, *Pancake & Smith 33* (AGUAT).

C ***Encyclia varicosa*** (Bateman ex Lindl.) Schltr., Beih. Bot. Centralbl. 36: 472. 1918. *Epidendrum varicosum*. AV, BV, Cm, Es, Gu, Hu, Ju, Pr, Qc, Qz, Sa, SM, So, SR, Su, To, Za. 1500 to 3000 m. T, open humid forest, especially oak-pine.

* ***Encyclia vespa*** (Vell.) Dressler & G. E. Pollard, Phytologia 21: 441. 1971. AV, Iz. 300 to 1100 m. E, warm, humid forest. Iz, 10 Dec. 1985, *Dix 6177* (UVAL); AV, Senahú, 3 Nov. 1990, coll. and flowered in cult. Torres s.n., *Dix 6633* (UVAL).

O ***Epidanthus paranthicus*** (Rchb.f.) L. O. Williams, see *Epidendrum paranthicum*.

C ***Encyclia vitellina*** (Lindl.) Dressler, Brittonia 13: 265. 1961. *Epidendrum vitellinum*. AV, Ja, Pr, Qc, To, Za. 1800 to 2600 m. E, cloud forest.

O ***Epidendrum abbreviatum*** Schltr., see *Encyclia abbreviata*.

C ***Epidendrum acunnae*** Dressler, Amer. Orchid Soc. Bull. 28: 358. 1959. *Epidendrum ramosum* var. *lanceolatum*. AV, Gu, Iz, Ja, Za. 200 to 900 m. E, very humid forest. Guatemala, without locality, in cult. W. del Pinal, *Dix 6294* (UVAL); AV, Rio Icvolay, nr. Cubilguitz, 200 m, *Steyermark 45081* (F).

O ***Epidendrum adenocarpon*** La Llave & Lex., see *Encyclia papillosa*.

O ***Epidendrum alatum*** Bateman, see *Encyclia alata*, *Encyclia ambigua*.

Epidendrum alticola Ames & Correll, Cm, So, SM, Su. 1900 to 2200 m. E, seasonally dry, cool, oak forest.

O ***Epidendrum anceps*** Jacq., see *E. galeottianum* A. Rich.

Epidendrum arbuscula Lindl., Cm, Cq, Es, Gu, Hu, Ja, Ju, Qc, Qz, Sa, SM, So, Su, To. 1200 to 3000 m. E, humid pine, oak or cypress forest, on trunks and lower branches. Flowers pinkish. Some reports may represent *E. nubium* or *E. polychromum* (q.v.). See also *E. badium*.

O ***Epidendrum arbuscula* var. *radioferens*** Ames, F. T. Hubb. & C. Schweinf., see *E. radioferens*.

O ***Epidendrum aromaticum*** Bateman, see *Encyclia incumbens*.

O ***Epidendrum atropurpureum*** Willd., see *Encyclia cordigera*.

* ***Epidendrum atroscriptum*** Hágsater, Icon. Orchid. 2: 109. 1993. As *E. paniculatum* in part. AV, Pe. 200 to 1200 m. E, L, very humid, broadleaf forest. Allied to *E. veroscriptum* and *E. roseoscriptum*, distinguished by successively open, relatively large flowers that have a dense, deep purple blotch covering the lip base. AV, 400 m, *Johnson 269* (AMES).

* ***Epidendrum badium*** Hágsater, Icon. Orchid. 2: 110. 1993. BV. 1600 to 1700 m. E, cloud forest. Member of *E. arbuscula* group, distinguished by brown sepals, white lip with yellow callus. BV, Purulhá, W. del Pinal, flowered in cult, 2 Oct. 1993, *Dix 7079* (UVAL).

* ***Epidendrum baumannianum*** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 126. 1920. AV. 350 m. E, open areas. Similar to *E. radicans*, but roots are basal. Has orange flowers and a 3-lobed fringed, not dentate, lip. *E. hawkesii* A. H. Heller is a synonym. AV, Cubilguitz, col. Archila s.n., flowered in cult., 24 May 1995, *Dix 7911* (UVAL).

* ***Epidendrum beharorum*** Hágsater, Icon. Orchid. 2: 112. 1993. As *E. coriifolium*. AV, BV, Cq, Gu, Hu, Qc, Qz. 1200 to 2800 m. E, L, very humid, broadleaf or mixed, forest. Hu, Soloma, 2300 m, Aug. 1917, *Skutch 1042* (AMES); Volcán de Pacaya, 1950 m, 5 Aug. 1993, *Dix 6214* (UVAL).

O ***Epidendrum boothianum*** Lindl., see *Encyclia boothiana*.

O ***Epidendrum boothii*** (Lindl.) L. O. Williams, see *Nidema boothii*.

O ***Epidendrum bractescens*** Lindl., see *Encyclia bractescens*.

O ***Epidendrum brassavolae*** Rchb.f., see *Encyclia brassavolae*.

O ***Epidendrum campylostalix*** Rchb.f., see *Encyclia campylostalix*.

O ***Epidendrum candollei*** Lindl., see *Encyclia candollei*, an excluded species.

* ***Epidendrum cardiochilum*** L. O. Williams, Amer. Orchid Soc. Bull. 9: 97. 1940. AV, BV, Cq, Gu, Ja, SR. 1200 to 1900 m. E, humid forest. BV, Cerro Verde, Union Barrios, 16 Jan. 1980, *Dix 4124* (UVAL).

Epidendrum carolii Schltr., Cq, Gu. 1500 to 1900 m. E, L, open, oak and cypress forest. Rare in Guatemala.

* ***Epidendrum carpophorum*** Barb. Rodr., Gen. & Sp. Orch. Nov. 2: 148. 1882. *E. nocturnum* in part. AV, BV, Gu, Iz, Ja, Pr. 1100 to 2000 m. E, L, very humid forest. Has also been known as *E. latifolium* (Lindl.) Garay & Sweet. BV, Unión Barrios, July 1974, La Barbara, *Lind et al. 0-41* (UVAL).

O ***Epidendrum centropetalum*** Rchb.f., see *Oerstedella centropetala*, *O. aberrans*.

Epidendrum cerinum Schltr., AV, Gu, Ju, Pr, Za. 1200 to 2300 m. E, very humid, oak forest. This appears to be conspecific with *E. comayaguense* Ames. Gu, Concepción Pinula, 21 Sep. 1981, *Dix 2139* (UVAL).

O ***Epidendrum chinense*** (Lindl.) Ames, see *Barkeria obovata*.

Epidendrum chloe Rchb.f., AV, BV, Ja, Pr, Qz, Su, Za. 1350 to 2600 m. E, L, on rotten trunks, very humid or cloud forest.

* ***Epidendrum chlorocorymbos*** Schltr., Fedde Repert. Beih. 12: 30. 1922. AV, Cq, Gu, Hu, Iz, Ju, Pe, Qc, Qz, Sa, SR. 0 to 1700 m. E, humid forest. Member of "difforme" group with terete stems, inflorescence with more than 10 yellow-green flowers and three-lobed lip with 2 calli. Fresh fragrance reminiscent of papaya. AV, road to Sebol, 1000 m, 17 Sep. 1979, *Dix 77-11* (UVAL); Iz, Modesto Mendez, 26 June 1970, *Harmon & Dwyer 2661* (US).

O ***Epidendrum chondylobulbon*** A. Rich. & Galeotti, see *Encyclia chondylobulbon*.

Epidendrum ciliare L., AV, BV, Cm, Cq, Es, Gu, Hu, Iz, Ja, Pe, Pr, Qc, Re, Sa, So, SR, Za. 200 to 2000 m. E, L, dry to humid, open forest.

Epidendrum clowesii Bateman ex Lindl., Cm, Gu(?), Ja, Qz, Re, SR, Su, Za. 600 to 1500 m. E, L, warm, dry to humid, oak forest. *E. chlorops* Rchb.f., which has been synonymized, may be a good species. Group needs further study.

Epidendrum cnemidophorum Lindl., AV, BV, Cm, Cq, Hu, Pr, SM, Su. 1000 to 1800 m. T, E, very humid forest. Once again, more than one species may be involved.

O ***Epidendrum cobanense*** Ames & Schltr., see *Jacquiniella cobanense*.

O ***Epidendrum cochleatum*** L., see *Encyclia cochleata*.

O ***Epidendrum condylochilum*** F. Lehm. & Kraenzl., see *Encyclia livida*.

O ***Epidendrum coriifolium*** Lindl., see *E. beharorum* Hágsater.

C ***Epidendrum coronatum*** Lindl., as *E. moyobambae* Kraenzl. 0 to 1800 m. E, swamps and humid forest. Member of *E. raniferum* group. Included on basis of a Skinner collection; no other specimens seen by us.

O ***Epidendrum cristatum*** Ruiz & Pav., see *E. raniferum*.

* ***Epidendrum cystosum*** Ames, Bot. Mus. Leafl. 2: 106. 1934. AV, Iz. 150 to 1200 m. E, warm, very humid forest. AV, Polochic

Valley, July 1975, *Dix s.n.* (UVAL). Small, cleistogamous plant.

O ***Epidendrum difforme*** Jacq., see *E. chlorocorymbos* Schltr., *E. dixorum* Hágsater, *E. melistagum* Hágsater, *E. mittelstaedtii* Hágsater.

Epidendrum diffusum Sw., AV, BV, Es, Hu, Iz, Ju, Pe, Pr, Re, SR, Za. 150 to 1600 m. E, L, open dry to humid forest.

* ***Epidendrum dixorum*** Hágsater, Icon. Orchid. 2: 129. 1993. As *E. difforme* in part. AV, Cm, Gu, Sa. 1400 to 2800 m. E, oak cloud forest. Distinguished by 6 to 8 large simultaneous flowers, elongated ovary, 3- lobed lip with trapezoid, recurved and emarginate midlobe. Cm, Acatenango, 2000 m, 2 May 1976, *Dix 2311* (UVAL); Cm, San José Calderas, San Andrés Iztapa, 2300 m, 12 Apr. 1989, *M. Véliz 89-328* (AGUAT).

O ***Epidendrum elegans*** (Knowles & Westc.) Rchb.f., see *Barkeria uniflora*, an excluded species.

Epidendrum eustirum Ames, F. T. Hubb. & C. Schweinf., AV. 600 to 1200 m. E, dense humid, broadleaf forest. AV, Polochic Valley, Dec. 1988, *Dix 6294* (UVAL).

* ***Epidendrum eximium*** L. O. Williams, Amer. Orchid Soc. Bull 10: 103, t. 4, figs. 1–5. 1941. Ja, Pr, Qc, To. 1500 to 2600 m. E, very humid oak forest. Qc, near Nebaj, 2475 m, 20 Oct. 1976, *Dix 4016* (UVAL); Ja, near Mataquescuintla, 2180 m, 8 Aug. 1977, *Dix 2316* (UVAL).

O ***Epidendrum fragrans*** Sw., see *Encyclia fragrans*, an unconfirmed species.

C ***Epidendrum galeottianum*** A. Rich. & Galeotti, Ann. Sci. Nat. Bot. sér. 3, 3: 21. 1845. As *E. anceps*. AV, Hu, Iz, Pe, Su. 300 to 2000 m. E, open humid forest.

* ***Epidendrum gonzalez-tamayoi*** Hágsater, Icon. Orchid. 2: 136. 1993. As *E. schlechterianum*. AV, Iz, Pe, Za. 0 to 1200 m. T, E, humid forest. Pe, Poptún, 1981, col. C. Porter s.n. flowered in cult., *Dix 8005* (UVAL).

* ***Epidendrum greenwoodii*** Hágsater, Orquídea (Mexico) 10: 338, 339. 1987. Su. 2500 m. E,T, oak forest. Su, Volcán de Atitlán, *Dix 4931* (UVAL).

O ***Epidendrum ibaguense*** HBK. Excluded species, see *E. radicans*.

Epidendrum imatophyllum Lindl., AV, Cq, Iz, Pe. 0 to 1000 m. E, warm, lowland forest, especially swamp. Associated with ants.

Epidendrum incomptum Rchb.f., AV, BV. 1200 to 1900 m. E, very humid, broadleaf forest.

O ***Epidendrum ionophlebium*** Rchb.f., see *Encyclia chacaoensis*.

Epidendrum isomerum Schltr., AV, Iz, Pe. 0 to 800 m. E, very humid forest.

C ***Epidendrum isthmii*** Schltr., Repert, Spec. Nov. Regni Veg. Beih. 17: 34. 1922. As *E. paniculatum* in part. AV, Pe. 200 to 1500 m. E, T, dense, very humid, warm, broadleaf forest. Grows at or near tree bases in low, swampy areas. Member of *E. paniculatum* group. Type Panama. Recognizable by completely white lip, green tepals, reflexed sepals and relatively broader petals. Over 1 m high. Col. Tinschert s.n., no locality, flowered in cult. *Hágsater 5338* (AMO); Pe, Poza Maya, July 1992, *Dix 7918* (UVAL).

Epidendrum lacertinum Lindl., Cm, SM, So. 1800 to 2700 m. E, cliff faces, seasonally dry forest, in shade.

Epidendrum laucheanum Rolfe ex Bonhof, AV, BV, Cm, Cq, Es, Gu, Ju, Pr, Su, Za. 1500 to 2500 m. T, E, dry to humid

forest. We have examined an extensive series of material in AMO, including specimens from the same locality, attributed to *E. laucheanum* and *E. urostachyum* Schltr., ranging from Panama to Mexico and can find no valid reason for separating the two species.

O ***Epidendrum ledifolium*** A. Rich. & Galeotti, see *E. propinquum*.

O ***Epidendrum limbatum*** Lindl., see *Encyclia glauca*.

O ***Epidendrum lindleyanum*** (Bateman) Rchb.f., see *Barkeria lindleyana and Barkeria spectabilis*.

O ***Epidendrum luteoroseum*** A. Rich. & Galeotti, see *Encyclia luteorosea*.

C ***Epidendrum macroclinium*** Hágsater, Orquídea (Mexico) 10: 319, 322. 1987. As *E. physodes*. AV, Iz, Pe. 300 to 1000 m. E, very humid, broadleaf forest. Iz, Finca Santa Anita Seja, 26 Mar. 1981, col. C. Porter, *Dix 8003* (UVAL).

* ***Epidendrum melistagum*** Hágsater, Orquídea (Mexico) 11: 28–29. 1988. As *E. difforme* in part. AV, Cq, Pe. 250 to 1700 m. E, humid, lowland forest. Recognized by nectar droplet just below callus and odor, which changes from sweet during morning hours to rancid at end of day. Pe, Dos Lagunas, 300 m, Aug. 1989, *Dix 6951* (UVAL).

Epidendrum microcharis Rchb.f., Cm, Cq, Ja, Pr, Qc, Qz, So, Su, To. 2600 to 3600 m. E, cool, upland forest, *Abies*, pine, oak.

* ***Epidendrum mittelstaedtii*** Hágsater, Icon. Orchid. 2: 157. 1993. As *E. difforme* in part. AV. 1300 m. E, humid forest. Distinguished by laterally compressed stems, ascending leaves and 4–5 bright green simultaneous flowers with broadly cordiform lip. So far, known only from type specimen cultivated by O. Mittelstaedt in Cobán, AV, *Hágsater 9554* (AMO).

C ***Epidendrum mixtum*** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 10: 294. 1912. *E. ramosum* var. *mixtum*. AV, BV, Cq, Es, Gu, Iz, Pr, Qz, Za. 1100 to 2200 m. E, T, very humid, oak-pine and broadleaf forest. Es, Volcán de Pacaya, 2000 m, 1 Dec. 1973, *Dix 73-4* (UVAL).

O ***Epidendrum moyobambae*** Kraenzl., see *E. coronatum*.

P ***Epidendrum nagelii*** L. O. Williams, Amer. Orchid Soc. Bull. 10: 103, t 4, figs. 6–9. 1941. See *E. trianthum*.

O ***Epidendrum neurosum*** Ames, see *Encyclia neurosa*.

Epidendrum nitens Rchb.f., AV, BV, Cq, Gu, Iz, Pr. 600 to 2000 m. E, very humid, cloud forest.

Epidendrum nocturnum Jacq., AV, Cq, Iz, Ju, Pe, Za. 0 to 1200 m. E, L, dry to humid forest. See also *E. carpophorum*.

* ***Epidendrum nubium*** Rchb.f., Beitr. Orch. Centr. Amer. 81. 1866. As *E. arbuscula* in part. Es, Gu, Ja, Ju, Pr, Qz, Sa, So, To. 1800 to 2100 m. E, very humid, oak-pine-cypress forest. Flowers predominantly white to cream, turning yellow with age. Type Gu, Las Nubes, *Wendland 332* (W); Gu, San José Pinula, Las Nubes, 25 Feb. 1973, *Dix 7504* (UVAL).

O ***Epidendrum ochraceum*** Lindl., see *Encyclia ochracea, Encyclia panthera*.

O ***Epidendrum oncidioides*** Lindl., see *Encyclia guatemalensis, E. dickinsoniana*.

O ***Epidendrum oncidioides* var. *gravidum*** (Lindl.) Ames, F. T. Hubb. & C. Schweinf., see *Encyclia gravida*.

Epidendrum pachyrachis Ames, Av, Iz. 100 to 900 m. E, warm, very humid forest with palms. Distinguished by rigid thickened stem, thick triangular bracts, and sharply deflexed raceme. Previously, only

known Guatemalan collection was the type: Iz, Jocolo, 100 m, 10 Apr. 1920, *Johnson 305* (AMES); recently coll. *M. Behar s.n.* near Laguna Lachuá, AV, 800 m, plant in W. del Pinal collection, photo Dix (UVAL).

O ***Epidendrum paniculatum*** Ruiz & Pav.. A species complex recently revised (Hágsater & Salazar, 1993), see *E. atroscriptum* Hágsater, *E. roseoscriptum* Hágsater, *E. veroscriptum* Hágsater, and *E. isthmii* Schltr.

O ***Epidendrum pansamalae*** Schltr., see *Oerstedella pansamalae*.

C ***Epidendrum paranthicum*** Rchb.f., Bot. Zeit. 10: 732. 1852. *Epidanthus paranthicus*. AV, BV, Cq, Iz, So, Za. 800 to 1800 m. E, very humid forest.

Epidendrum parkinsonianum Hook., Cm, Cq, Gu, Pr, Qc, Qz, SM, Za. 1250 to 2200 m. E, conifer and mixed oak-pine forest.

O ***Epidendrum pentotis*** Rchb.f., see *Encyclia baculus*.

C ***Epidendrum peperomia*** Rchb.f., Bonplandia 2: 20. 1854. As *E. porpax*. BV, Pr, SM, Za. 1100 to 1400 m. E, lower trunks, seasonally dry, oak forest.

O ***Epidendrum physodes*** Rchb.f., see *E. macroclinium*.

Epidendrum polyanthum Lindl., AV, BV, Cm, Cq, Es, Gu, Hu, Iz, Ju, Pe, Pr, Qz, SM, SR, Za. 0 to 2700 m. T, E, shrubs or low trees in humid forest. Probably represents several species.

O ***Epidendrum polybulbon*** Sw., see *Encyclia polybulbon*.

* ***Epidendrum polychromum*** Hágsater, Orquídea (Mexico) 7: 156. 1979. Cm, Gu, Qz, Sa. 1800 to 2200 m. E, cloud forest. Member of *E. arbuscula* complex. Flowers pale greenish brown with prominent purple marks on lip lamella. Sa, near Acatenango, 2 May 1976, *Dix 2440* (UVAL); Qz, Zunil, May 1980, *Dix 6746* (UVAL).

O ***Epidendrum porpax*** Rchb.f. See *E. peperomia* Rchb.f.

C ***Epidendrum propinquum*** A. Rich. & Galeotti, Ann. Sci. Nat. Bot. sér. 3, 3: 21. 1845. As *E. ledifolium*. Cq, Pr, Qc. 1600 to 2500 m. T, E, in open forest.

Epidendrum pseudoramosum Schltr., AV, BV, Cq, Qz, Za. 1200 to 1700 m. E, open or dense forest.

O ***Epidendrum pygmaeum*** Hook., see *Encyclia pygmaea, E. pseudopygmaea*.

O ***Epidendrum radiatum*** Lindl., see *Encyclia radiata*.

C ***Epidendrum radicans*** Pav. ex Lindl., Gen. Sp. Orch. Pl. 104. 1831. As *Epidendrum ibaguense*, an excluded species. AV, BV, Gu, Hu, Iz, Ju, Pr, Qz, Sa, SM, SR, So, Su, Za. 700 to 1800 m. T, roadside banks.

C ***Epidendrum radioferens*** (Ames, F. T. Hubb. & C. Schweinf.) Hágsater, *E. arbuscula* var. *radioferens*. Cm, Hu, Qc, SM. 2000 to 3000 m. E, dense cloud forest and cool, oak forest.

Epidendrum ramosum Jacq., AV, BV, Cm, Cq, Gu, Pr, Qz, SM, So, Su. 1500 to 2000 m. E, L, widespread in oak, oak-pine and broadleaf forest.

O ***Epidendrum ramosum var. angustifolium*** (Cogn.) L. O. Williams, see *E. santaclarense*.

O ***Epidendrum ramosum* var. *lanceolatum*** Griseb., see *E. acunnae*.

O ***Epidendrum ramosum* var. *mixtum*** (Schltr.) Ames, see *E. mixtum*.

C ***Epidendrum raniferum*** Lindl., Gen. & Sp. Orch. Pl. 109. 1831. As *E. cristatum*. AV,

Gu (?), Iz, Pe, Su. 200 to 1500 m. E, T, dense, humid forest.

Epidendrum repens Cogn., AV, BV, Cq, Es, SM, Su, Za. 1200 to 2100 m. E, humid or very humid forest.

Epidendrum rigidum Jacq., AV, BV, Cm, Hu, Iz, Ju, Pe, Pr, Za. 0 to 1400 m. E, dense, broadleaf and oak-pine forest.

* ***Epidendrum roseoscriptum*** Hágsater, Icon. Orquid. 2: 183. 1993. *E. paniculatum* in part. AV, BV, Cq, Hu, Ja, Za. 1200 to 2500 m. T, E, very humid forest. Many-branched panicle, 45–75 cm tall. Distinguished by white lip with rose-lilac patch covering keels, callus, and part of labellum center. Strong lemon fragrance. BV, Purulhá, 5 July 1974, *Hágsater 5360* (AMO), same collection, *Dix 429* (UVAL).

C ***Epidendrum santaclarense*** Ames, Sched. Orch. 4: 49. 1923. As *E. ramosum* var. *imbricatum* (Lindl.) Ames, F. T. Hubb. & C. Schweinf., syn. of *E. ramosum* var. *angustifolium*. The latter is an Antillean species. Gu, Ja, Za. 2000 to 2300 m. E, cloud forest. Ja, near Miramundo, *Dix 5366* (UVAL); Gu, Pacaya, *Standley 58490* (AMES).

O ***Epidendrum schlecterianum*** Ames, see *E. gonzalez-tamayoi*.

O ***Epidendrum schweinfurthianum*** Correll, see *Oerstedella schweinfurthiana*.

* ***Epidendrum sculptum*** Rchb.f., Bonplandia 2: 89. 1854. AV? 1200 m. E, dense, humid forest. One specimen, *Dix 7263*, in UVAL without locality data.

O ***Epidendrum selligerum*** Bateman ex Lindl., see *Encyclia selligera, E. diota.*

Epidendrum singuliflorum Schltr., AV, Iz. 900 to 1600 m. E, warm, humid forest. AV, Pansamalá, is type locality of *E. singuliflorum*, *Tuerckheim 1096* (AMES); Iz, Entre Ríos, photo *Lewis 142* (AMES).

O ***Epidendrum skinneri*** Bateman ex Lindl., see *Barkeria skinneri.*

* ***Epidendrum skutchii*** Ames, F. T. Hubb. & C. Schweinf., Hu, Qc. 1800 to 2500 m. E, cloud forest.

Epidendrum sobralioides Ames & Correll, BV, Pr, Za. 1800 to 2400 m. E, mixed oak-pine forest.

Epidendrum stamfordianum Bateman, AV, Cq, Hu, Iz, Ju, Pe, Qz, Re, SM, Su. 0 to 600 m. E, open forest in warm areas.

* ***Epidendrum stangeanum*** Rchb.f., Gard. Chron. 15: 462. 1881. 30 m. Iz. E, swamps. Has vertical rhizomes and almost terete leaves. Iz, Livingston, Orilla del Golfete, growing on red mangrove, 21 Nov. 1982, *Duarte 82-494* (AGUAT).

O ***Epidendrum stenopetalum*** Hook., see *Dimerandra emarginata*.

Epidendrum strobiliferum Rchb.f., AV, BV, Iz, Pe. 0 to 600 m. E, open humid forest.

O ***Epidendrum subaquilum*** Lindl., see *Encyclia subaquilina*, an excluded species.

O ***Epidendrum teretifolium*** Sw., see *Jacquiniella teretifolia*.

O ***Epidendrum trachycarpum*** Lindl., see *Encyclia trachycarpa*, an excluded species.

Epidendrum trachythece Schltr., Cq, Gu, Pr, Za. 2100 to 2400 m. E, L, cloud forest.

* ***Epidendrum trianthum*** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 16: 447. 1920. Gu. 1200 m. L, cliff faces, rarely E, humid oak forest. Has been known in Guatemala as *E. nagelii* L. O. Williams. Gu, near Santa Elena Barillas, Villa Canales, 1100 m, Apr. 1973, *Dix 571* (UVAL); same locality, Mar. 1974, *Dix 587* (UVAL).

O ***Epidendrum tuerckheimii*** (Schltr.) Ames, F. T. Hubb. & C. Schweinf., see *Encyclia tuerckheimii*.

O ***Epidendrum varicosum*** Bateman ex Lindl., see *Encyclia varicosa* (Bateman) Schltr.

* ***Epidendrum veroscriptum*** Hágsater, Icon. Orchid. 2: 195. 1993. As *E. paniculatum* in part. AV, BV, Cq, Qc, Qz. 200 to 1450 m. E, L, very humid forest, near rivers. Distinguished by vertical bars on disc. AV, Sebol-Coban road, Finca Chapultepec, 21 May 1964, *Contreras 4754* (LL); AV, San Julian, A. Behar s.n., flowered in cult., 11 Jan. 1976, *Hágsater 5380* (AMO); BV, Cerro Verde, Unión Barrios, 15 July 1974, *Dix 431* (UVAL). A specimen col. Widemann s.n, Laguna Chicabal, Qz, 2900 m, *Dix 7318* (UVAL), which is pure white with a short raceme, may represent this species at an unusually high elevation.

O ***Epidendrum verrucosum*** Sw., see *Oerstedella verrucosa* (Sw.) Hágsater.

O ***Epidendrum verrucosum* var. *myrianthum*** (Lindl.) Ames & Correll, see *Oerstedella myriantha* (Lindl.) Hágsater.

Epidendrum viejii Rchb.f., AV, BV, Gu, Za. 1400 to 1900 m. E, mixed humid forest, especially cypress-pine.

O ***Epidendrum virgatum*** Lindl., see *Encyclia michuacana* (La Llave & Lex.) Schltr.

O ***Epidendrum vitellinum*** Lindl., see *Encyclia vitellina* (Lindl.) Dressler.

O ***Epidendrum xipheres*** Rchb.f., see *Encyclia nematocaulon* (A. Rich) Acunna.

* ***Eriopsis biloba*** Lindl., Bot. Reg. 33: Sub. t. 9. 1847. AV, BV, Iz, Za. 800 to 1500 m. T, dense, warm, humid forest. BV, Purulhá, 1500 m, 1982, *Dix 7925* (UVAL); Iz, 900 m, Apr. 1995, *Dix 7916* (UVAL).

O ***Erythrodes loxoglottis*** (Rchb.f.) Ames, see *Kreodanthus loxoglottis*.

C ***Erythrodes lunifera*** (Schltr.) Ames, Orch. Fasc. 7: 71. 1922. *E. purpurea* in part. AV, BV, Es, Gu, Hu, Pe, Re, Su. 0 to 1800 m. T, humus in moist, shady forest. Light green leaves, short inflorescence stalk and long lip spur. Illustrated in Hágsater and Salazar (1990: pl. 43).

O ***Erythrodes maculata*** (Hook.) Ames, see *Platythelys maculata*.

O ***Erythrodes ovatilabia*** Ames & Correll, see *Kreodanthus ovatilabius*.

Erythrodes purpurea Ames, AV, Es, Hu, Pe, Su. 200 to 1800 m. T, humus, moist, shady forest. Leaves unmarked, purple on under surface.

O ***Erythrodes querceticola*** (Lindl.) Ames, see *Platythelys querceticola, P. vaginata*.

O ***Erythrodes querceticola* var. *venustula*** (Ames) Correll, see *Platythelys venustula*.

O ***Erythrodes stictophylla*** (Schltr.) Ames, see *Aspidogyne stictophylla* (Schltr.) Garay.

O ***Erythrodes tuerckheimii*** (Schltr.) Ames, see *Aspidogyne tuerckheimii* (Schltr.) Garay.

Erythrodes vesicifera (Rchb.f.) Ames, Ju, Qc, SR. 1500 to 2400 m. T, damp humus in wet forest. Very large species with mottled leaves, violin-shaped lip, tubular flowers, and long inflorescence stalk.

Eulophia alta (Lindl.) Fawc. & Rendle. AV, BV, Hu, Qz. 300 to 1000 m. T, swamps and meadows.

* ***Eurystyles auriculata*** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 86. 1923. AV, BV, Su. 800 to 1100 m. E, on trunks and low branches, warm humid forest. AV, Senahú, Finca Trece Aguas, 6 Dec. 1982,

Dix 6821 (UVAL); AV, Finca Trece Aguas, 14 Sep. 1983, *Dix 4895* (UVAL).

C ***Galeandra cf. batemanii*** Rolfe, Gard. Chron. Ser. 3, 12: 431. 1892. As *Galeandra baueri,* sensu Bateman. *G. baueri* is a South American species. AV. 500 to 900 m. E, on palms in very humid, warm areas. AV, Laguna Lachuá, col. O. Mittelstaedt, in flower Sep. 1989, *Dix 6949* (UVAL).

O ***Galeandra baueri*** Lindl., see *G. batemanii.*

C ***Galeottia grandiflora*** A. Rich., Ann. Sci. Nat. Bot., sér. 3, 3: 25. 1845. *Zygopetalum grandiflorum.* AV, Iz, Za(?). 300 to 1100 m. E, warm, humid, broadleaf forest.

C ***Galeottiella minutiflora*** (A. Rich. & Galeotti) Szlach., Frag. Florist Geobot. 36: 10. 1991. *Spiranthes minutiflora* in part. Hu, Qz, SM, So. 1500 to 3900 m. L, T, rocky areas with grass, under conifers on open slopes. So, bei Chisoy, *Tuerckheim 1102* type (P). Small plant with two basal leaves and 12 cm inflorescence.

C ***Galeottiella nutantiflora*** (Schltr.) Szlach., Frag. Florist Geobot. 36: 9. 1991. *Spiranthes minutiflora* in part. AV, Qc. 1000 to 1600 m. L, T, rocky areas, grassy slopes in open, oak-pine forest.

C ***Galeottiella sarcoglossa*** (A. Rich. & Galeotti) Schltr., Beih. Bot. Centralbl. 37: 361. 1920. *Spiranthes sarcoglossa.* Hu, To. Above 3000 m. T, in grass under conifers.

C ***Gongora aromatica*** Rchb.f., Allgen. Gartztg.: 281. 1854. As *Gongora maculata.* AV, Iz, Pe. 100 to 1000 m. E, Atlantic drainage, lower slopes, very humid, broadleaf forest. Very strong fragrance, dark pink to yellow flowers with white lip and lines on tepals. Represents species that has been known as *Gongora quinquenervis* Ruiz & Pav. in Guatemala and was cited by A & C as a synonym of *G. maculata.*

Gongora cassidea Rchb.f., AV, BV, Cm, Cq, Ju, Qz, SM, So, Su, Za. 1000 to 1700 m. E, damp forest.

* ***Gongora galeata*** (Lindl.) Rchb.f., Xenia. Orch. 1: 51. 1854. As *G. cassidea* in part. AV, BV. 1000 to 1500 m. E, humid forest.

* ***Gongora leucochila*** Lem., Flores des Serres 1: 207, t.37. 1845. Qc. 1000 m. E broadleaf forest. Species with pale rose sepals, white to beige lip with apical tinge of maroon. Qc, San Luis Ixcán, 2 Mar. 1977, *Dix 7099* (UVAL).

O ***Gongora maculata*** Lindl., see *G. aromatica, G. unicolor.*

P ***Gongora quinquenervis*** Ruiz & Pav., see *G. aromatica.*

* ***Gongora tridentata*** Whitten, Lindleyana 6: 109,110. 1991. BV. 1000 to 1400 m. E, wet humid forest. BV, near Purulhá, May 1990, W. del Pinal, *Dix 6614* (UVAL).

* ***Gongora truncata*** Lindl., Bot. Reg. 29: Misc. 42. 1843. AV, Pe. 100 to 1000 m. E, warm, humid, lowland forest. Yellow lip.

C ***Gongora unicolor*** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 299. 1923. As *G. maculata* in part. AV, Iz, Qc. 0 to 500 m. E, Atlantic lowlands. Flowers pink or red, smells of nixtamal. (Nixtamal is the characteristic odor of tortilla meal.)

* ***Goodyera dolabripetala*** (Ames) Schltr., Bot. Jahrb. Syst. 45: 391. 1908. Ja. 2400 m. T, oak forest. Ja, Cerro Miramundo, 28 Sep. 1986, *Dix 86-7* (UVAL).

Goodyera major Ames & Correll, Za. 2000 to 2600 m. T, humid cloud forest.

Goodyera striata Rchb.f., AV, BV, Cm, Cq, Gu, Hu, Pr, Qz, SM, So, To, Za. 1700 to 3000 m. T, humid pine-oak forest. Without a lip spur.

* ***Govenia dressleriana*** E. W. Greenw., Orquídea (Mexico) 13: 165. 1993. Gu. 1860 m. T, cool, humid, cypress and pine forest. Yellow-brown flowers with three dots on apical portion of lip. Gu, Puerta Parada, Santa Catarina Pinula, 1860 m, 5 July 1987, *Dix 6155* (UVAL).

* ***Govenia liliacea*** (La Llave & Lex.) Lindl., Bot. Reg. 21: t. 1795. 1836. As *G. utriculata* var. *capitata*. AV, BV, Cm, Ja, Ju, Pr, Qc, Sa, SR, So, Za. 1400 to 2600 m. T, very humid, oak-pine forest. Recognized by heavy spotting of lip above middle, restricted to lower surface.

Govenia mutica Rchb.f., AV, BV, Gu, Pr, Qz, SM, Za. 1000 to 1900 m. T, broadleaf, humid forest and cypress forest.

O ***Govenia mutica* var. *purpusii*** (Schltr.) Correll, see *G. purpusii*.

* ***Govenia praecox*** Salazar & E. W. Greenw., Orquídea (Mexico) 13: 113, 114. 1993. Ja, So, Za. 2200 to 2400 m. T, disturbed edges of *Podocarpus-Quercus* cloud forest, pine-oak forest. So, Argueta, Km 136, 2300 m, 25 June 1995, *M. W. Dix 7501* (UVAL); Za, above Río Hondo, 2200 m, 9 May 1993, *Dix 7184* (UVAL). Latter specimen differs from type description in that lip and column are spotted all over and may represent a separate species.

C ***Govenia purpusii*** Schltr., Beih. Bot. Centralbl. 36: 412. 1918. *G. mutica* var. *purpusii*. So, Su. 2400 to 3600 m. T, pine-oak forest. Cited by A & C from Volcán Santa Clara and Volcán Atitlán.

Govenia* cf. *superba (La Llave & Lex.) Lindl., AV, Cm, Gu, Hu, Qz, So, SR. 1500 to 2700 m. T, humid pine, oak, or cypress forest.

Govenia* cf. *utriculata (Sw.) Lindl., Gu, Hu, Qc, Sa. 1500 to 3000 m. T, humus in humid oak-pine forest.

O ***Govenia utriculata* var. *capitata*** (Lindl.) Correll, see *G. liliacea*.

Habenaria alata Hook., AV, BV, Cm, Gu, Ju, Pr, Sa, SR, Za. 900 to 1600 m. T, open, humid, pine and cypress forest.

O ***Habenaria bractescens*** Lindl., see *H. pringlei*. *H. bractescens* is a South American species.

Habenaria clypeata Lindl., Gu, Hu, Ja, Qc, SR, Za. 1200 to 2900 m. T, dry, rocky, oak-pine forest; meadows; sandy limestone soils. Pure white flowers.

Habenaria crassicornis Lindl., AV, BV, Cm, Gu, Hu, Ja, SR. 1800 to 2600 m. T, oak-pine forest, damp ravines, meadows. Upward-pointing spur, spider-like flowers, and strong hairs on petals distinguish this species.

Habenaria distans Griseb., includes *H. distans* var. *jamaicensis* (Fawc.& Rendle) Cogn., AV, Cm, Cq, Gu, Hu. 100 to 2000 m. T, humid, shady forest and grassy slopes. Distinguished by basal leaves.

O ***Habenaria distans var. jamaicensis*** (Fawc. & Rendle) Cogn., see *H. distans*.

O ***Habenaria entomantha*** (La Llave & Lex.) Lindl., see *H. guadalajarana* and *H. tetranema*.

Habenaria eustachya Rchb.f., AV. 200 to 800 m. T, wet soils, open to dense lowland forest. Very small plant.

C ***Habenaria guadalajarana*** S. Watson, Proc. Amer. Acad. Arts. 22: 456. 1887. As *H. entomantha* in part. AV, BV, Cm, Gu, Hu, Pr, Qc, So. 1300 to 3300 m. T, dry, oak-pine forest and grassy areas. Variable species with small green flowers and equitant leaves scattered along the stem. Gu, Praderas de Guatemala, 3 Aug. 1921, *Tonduz 741* (AGUAT).

O ***Habenaria limosa*** (Lindl.) Hemsl., see *Platanthera limosa* Lindl.

* ***Habenaria macroceratitis*** Willd., Sp. Pl. 4: 44. 1805. *H. quinqueseta* in part. Re, So. 1400 to 2000 m. T, pine forest and open or shady hillsides, dry areas. Spur 14 cm long.

Habenaria monorrhiza (Sw.) Rchb.f., AV, Pe, Qz, Re. 100 to 1500 m. T, damp meadows, roadside thickets, and open or shady hillsides. Very tall plants with spotted leaf bases.

Habenaria novemfida Lindl., AV, Gu, Hu, Ja, Qc, To, Za. 1500 to 2800 m. T, open forest, grassy slopes near streams, rocky hillsides.

C ***Habenaria odontopetala*** Rchb.f., Linnaea 18: 407. 1844. As *H. strictissima* var. *odontopetala*. AV, BV, Cq, Es, Iz. 100 to 1500 m. T, humus, damp woods and swamps. Leaves bluish. Illustrated as *H. floribunda* Lindl. by Hamer (1989).

O ***Habenaria pauciflora*** (Lindl.) Rchb.f., see *H. trifida* HBK.

C ***Habenaria pringlei*** Rob., Proc. Amer. Acad. Arts 27: 184. 1892, fig. 4. As *H. bractescens* Lindl. AV, Es, Iz, Pe, So. 0 to 1000 m. T, aquatic meadows. White flowers. AV, Bocas del Polochic, 60 m, Apr. (no year given), *Donnell Smith 1583* (US).

Habenaria quinqueseta (Michx.) Sw., BV, Gu, Hu. 1500 to 2000 m. T, humid pine forest and open slopes, near streams. Very large plant, leaves with reticulate pattern, and flowers with 5 to 6 cm spur. See also *H. macroceratitis*.

Habenaria repens Nutt., AV, BV, Cm, Es, Gu, Ja, Ju, Pe, Re, Sa, So, SR, Su. 0 to 2000 m. T, aquatic or in swamps.

Habenaria strictissima Rchb.f., Cq, Ju, Pe. 800 to 2200 m. T, woods with deep humus, dry areas, rocky hillsides and open fields. Usually self-pollinated.

O ***Habenaria strictissima*** **var. *odontopetala*** (Rchb.f.) L. O. Williams, see *H. odontopetala*.

C ***Habenaria tetranema*** Schltr., Beih. Bot. Centralbl. 36: 373. 1918. As *H. entomantha*. Cm, Hu, Qc, So. 1300 to 3300 m. T, humid, pine-oak forest, swamps and meadows. Larger plant with broader leaves and different habitat from *H. guadalajarana*.

C ***Habenaria trifida*** HBK, Nov. Gen. Sp. 1: 330. 1815. *H. pauciflora*. Hu, Pe, Za. 0 to 1350 m. T, bogs, savanna, thickets, and open forest or rocky slopes. Three or fewer flowers, leaves closely appressed to stem.

* ***Hagsatera rosilloi*** R. González T., Orquídea (Mexico) 3: 345. 1974. Hu. 1400 m. E, oak forest. Hu, col. Peter Meng on low branch overhanging Central American highway, *Dix 6754* (UVAL).

C ***Hapalorchis lineatus*** (Lindl.) Schltr., Beih. Bot. Centralbl. 37: 363. 1920. *Spiranthes amabilis*. AV, Gu. 1300 to 1800 m. T, humid, mountain forest.

* ***Helleriella nicaraguensis*** A. D. Hawkes, Phytologia 14: 4. 1966. Es, Gu. 1800 to 1900 m. E, humid, mixed cypress/pine forest. Illustrated by Oesterreich (1967). Gu, on roadside bush near Don Justo, Sep. 1984, *Dix 6827* (UVAL); Gu, Pacaya, 1 Dec. 1973, flowered 1 Oct. 1976, *Dix 7134* (UVAL).

Hexalectris parviflora L. O. Williams, Pr. 2000 to 3000 m. T, dry oak forest on limestone. Cited by A & C. No additional collections known.

O ***Hexisea bidentata*** Lindl., see *H. imbricata* (Appendix I).

Homalopelatum pumilio (Rchb.f.) Schltr., AV, BV, Cq, Pr, Za. 1100 to 2000 m. E, L, oak-pine forest.

O ***Houlletia landsbergi*** Lindl. & Rchb.f., see *H. tigrina*.

C ***Houlletia tigrina*** Linden ex Lindl., Paxton's Fl. Gard. 3: 172. 1853. *H. landsbergi*. AV, Za. 600 to 1400 m. E, broadleaf, very humid, warm forest. Za, cloud forest ridge, near Gualán, 1350 m, 7 June, 1985, *Dix 4936* (UVAL).

* ***Huntleya burtii*** (Endres & Rchb.f.) Pfitzer, Nat. Pflanzenfam. 2: 205. 1889. Iz. E, broadleaf, humid forest. Iz, 30 Nov. 1994, M. W. & W. Dix, *Dix 7879* (UVAL).

Ionopsis satyrioides Rchb.f., Pe. 0 to 300 m. E, dense, humid forest.

Ionopsis utricularioides (Sw.) Lindl., AV, Iz, Pe. 0 to 1000 m. E, small twigs and bushes, dry to humid warm forest.

C ***Isochilus alatus*** Schltr., Fedde Repert. 10: 360. 1912. *I. major* var. *alatus*. AV, BV, Iz, So, Su, Za. 1000 to 2400 m. T, E, mixed humid forest. Large plants with broad elliptic leaves, verrucose sheaths on upper portions of stem.

C ***Isochilus amparoanus*** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 27. 1923. *I. major* var. *amparoanus*. AV, BV, Cq, Gu, Hu, Ja, Qz, Re, SM, SR, Za. L, E, 670 to 2300 m. L, E, dry oak forest, lava flows, humid forest. Large plants with medium-sized leaves, purple bracts and pale flowers. AV, Purulhá, July 1974, *Dix 536* (UVAL). Herbarium specimens cited by A & C need revision.

* ***Isochilus aurantiacus*** Hamer & Garay, Orquídeas El Salvador 3: 18. 1981. Cq, Es, Gu, Ja, Pr, Sa, Za. 2100 to 2900 m. E, T, cloud forest. Orange flowers. We find no other characters but size that distinguish this species from *I. pitalensis* Hamer & Garay. Pr, 2175 m, 16 Feb. 1983, *Dix 6102* (UVAL).

C ***Isochilus carnosiflorus*** Lindl., Paxt. Mag. Bot. 11: 213. 1844. *I. linearis* var. *carnosiflorus*. AV, Iz, Ju, Pe, SM, Su. 0 to 2500 m. E, mixed oak-pine forest to sea level mangroves in dense shade. Distichous inflorescence with well separated flowers, small bracts, and leaves 3 to 7 mm wide, the uppermost reddish.

* ***Isochilus latibracteatus*** A. Rich. & Galeotti, Ann. Sci. Nat. Bot. sér. 3, 3: 22. 1885. BV, Su, Za. 1700 to 1800 m. E, oak-pine forest. Long, narrow leaves, very dense unilateral inflorescence with broad imbricated bracts. Za, Sierra de las Minas, 1740 m, 26 Apr. 1981, *Dix 6124* (UVAL); Su, Volcán de Atitlán, 1700 m, 20 May 1973, 1700 m, *Dix 6133* (UVAL).

Isochilus linearis (Jacq.) R. Br., BV, Cm, Es, Gu, Hu, Iz, Ja, Pr, Qz, So, SR, Su, Za. 0 to 2900 m. T, L, E, especially oak-pine forest. Few flowers, long narrow leaves.

O ***Isochilus linearis* var. *carnosiflorus*** (Lindl.) Correll, see *I. carnosiflorus*.

Isochilus major Cham. & Schltr., AV, BV, Ju, Pr, Qc, Za. 600 to 2000 m. T, E, oak forest. Very broad stems, purple bracts.

O ***Isochilus major* var. *alatus*** (Schltr.) Correll, see *I. alatus*.

O ***Isochilus major* var. *amparoanus*** (Schltr.) Correll, see *I. amparoanus*.

C ***Jacquiniella cobanensis*** (Ames & Schltr.) Dressler, Taxon 15: 242. 1966. *Epidendrum cobanense*. AV, BV, Cm, Cq, Es, Gu, Hu, Iz, Ja, Ju, Pr, Qz, Re, Sa, SR, SM, Su, Za. 1200 to 2400 m. E, humid pine-oak forest.

* ***Jacquiniella equitantifolia*** (Ames) Dressler, Taxon 15: 242. 1966. AV, BV, Iz, Pe. 300 to 1200 m. E, very humid, dense forest. AV, near San Cristobal

Verapaz, 16 Sep. 1977, *Dix 6755* (UVAL); Pe, Poptún, 1000 m, *Dix s.n.* (UVAL); Iz, Río Las Escobas, 400 m, Jan. 1987, *Dix 6381* (UVAL).

* ***Jacquiniella gigantea*** Dressler, Salazar & García-Cruz, Orquídea (Mexico) 12: 145, 159. 1992. AV, BV, Za. 1200 to 2200 m. E, cloud forest or pluvial forest. Cleistogamous species with extremely long terete leaves. BV, Purulhá, 18 Feb. 1979, *Dix 2305* (UVAL); BV, near Purulhá, 15 July 1974, *Dix 454* (UVAL); BV, Km 130, Santa Elena, 20 July 1974, *Dix 455* (UVAL).

Jacquiniella globosa (Jacq.) Schltr., AV, BV, Iz, Pe, Za. 0 to 1500 m. E, humid, dense forest.

C ***Jacquiniella teretifolia*** (Sw.) Britton & P. Wilson, Sci. Surv. Porto Rico & Virgin Islands 6: 340. 1926. *Epidendrum teretifolium*. AV, BV, Cq, Iz, Ju, Pr, SR, Za. 1000 to 2250 m. E, mixed, dry to humid, oak-pine forest.

* ***Kefersteinia*** **cf.** ***lactea*** (Rchb.f.) Schltr., Beih. Bot. Centralbl. 36: 613. 1918. Su. 900 m E, shade trees in coffee and cardamom plantations. Su, Finca Santa Adelaida, Santa Bárbara, *Dix 6630* (UVAL).

* ***Kegeliella atropilosa*** L. O. Williams & A. H. Heller, Fieldiana Bot. 21: 39. 1964. AV, Iz, Za. 800 to 1000 m. E, trees overhanging river, very humid, broadleaf forest. Za, near Gualán, 1000 m, Apr. 1983, *Dix 4940* (UVAL); Iz, 1000 m, Aug. 1995, *Dix 8034* (UVAL).

C ***Kionophyton seminudum*** (Schltr.) Garay, Bot. Mus. Leafl. 28: 330. 1982. *Spiranthes seminuda*. Hu. 2000 to 2500 m. T, occasionally E, pine-*Abies* forest.

C ***Kreodanthus loxoglottis*** (Rchb.f.) Garay, Bradea 2: 199. 1977. *Erythrodes loxoglottis*. Gu. 1600 to 1800 m. T, ravines. Considered questionable by A & C but a good species by Garay (1977).

C ***Kreodanthus ovatilabius*** (Ames & Correll) Garay, Bradea 2: 199. 1977. *Erythrodes ovatilabia*. Cq, Ja, SM. 1300 to 3000 m. T, oak forest.

Lacaena bicolor Lindl., BV, Iz, Pr, Za. 1150 to 1950 m. E, mixed oak-pine, humid cloud forest.

* ***Laelia anceps*** Lindl., BV, Cq. 1000 to 1400 m. E, dry oak forest. Chiquimula, coll. Monzon, flowered in cult., *Dix 8031* (UVAL); also said to occur in Salama Valley, but no specimens seen by us.

O ***Laelia digbyana*** Benth., see *Rhyncholaelia digbyana*.

O ***Laelia glauca*** (Lindl.) Benth., see *Rhyncholaelia glauca*.

Laelia rubescens Lindl., AV, Cq, Es, Ju, Pr, Re, SR. 0 to 1000 m. E, occasionally L, dry to humid, tropical forest.

Laelia superbiens Lindl., AV, Cm, Cq, Gu, Hu, Sa. 1500 to 2000 m. E, L, cool, open forest.

O ***Laelia tibicinis*** (Batem. ex Lindl.) L. O. Williams, see *Myrmecophila tibicinis*.

O ***Laelia wendlandii*** Rchb.f., see *Myrmecophila wendlandii*.

Leochilus johnstonii Ames & Correll, AV, BV, Gu, Pe, Za. 200 to 2200 m. E, twigs in humid forest, often oak or cypress, coffee plantations.

Leochilus labiatus (Sw.) Kuntze, AV, Iz. 0 to 1200 m. E, humid forest and plantations.

Leochilus oncidioides Knowles & Westc., BV, Es, Gu, Hu, Sa, SR, Su. 400 to 1500 m. E, trees and bushes, humid forest.

O ***Leochilus pygmaeus*** (Lindl.) Benth. & Hook. ex B. D. Jacks., see *Rhynchostele pygmaea*.

Leochilus scriptus (Scheidw.) Rchb.f., Iz, Ju, Pe, Re, Su. 0 to 600 m. E, humid forest.

Lepanthes acuminata Schltr., AV, BV, Hu, Ja, Ju, Za. 1200 to 2500 m. E, very humid forest or cloud forest.

* ***Lepanthes almolongae*** Luer & Behar, Lindleyana 6: 64. 1991. Qz. 2000 to 2900 m. E, oak-pine cloud forest. Close relative of *L. geniculata*. Qz, near Almolonga, col. J. Herrera, flowered in cult., *Luer 14889* (MO).

* ***Lepanthes ancylopetala*** Dressler, Rhodora 61: 4–5. 1959. Cm. 2000 m. E, very humid, oak-pine forest. We have not seen the specimen, but Luer (pers. comm.) has suggested this species is present in Guatemala. However, the material on which this was based may be *L. papillipetala*.

Lepanthes appendiculata Ames, AV, BV, Cq, Hu, Ja, Ju, Pr, Za. 100 to 2400 m. E, humid pine-oak and broadleaf forest.

* ***Lepanthes arachnion*** Luer & Dressler, Orquideología 16: 20. 1986. AV. 300 to 900 m. E, shady, broadleaf, humid, warm forest. AV, Río Sachicaj, Feb. 1991, *Salazar et al. s.n.* (AMO).

* ***Lepanthes archilae*** Luer & Behar, Lindleyana 5: 185. 1990. AV. 1500 m. E, humid forest. AV, 13 Feb. 1990, in cult. Coban, *Luer 14637* (MO); AV, Archila, in cult. Coban, 1 Dec. 1994, *Dix 7493* (UVAL). Closely related to *L. stenophylla*.

* ***Lepanthes beharii*** Luer, Lindleyana 5: 185. 1990. BV. 1600 m. E, very humid, broadleaf forest. BV, near Purulhá, *Luer 14582* (MO).

* ***Lepanthes bifida*** Luer & Behar, Lindleyana 12: 34. 1997. AV, Ja, Za. 1800 to 2300 m. E, very humid oak, *Podocarpus*, cloud forest. Za, Sierra de las Minas, 2100 m, Apr. 1990, *Dix 6676* (MO).

* ***Lepanthes breedlovei*** Salazar & Soto Arenas, Orquídea (Mexico) 14: 75. 1995. Hu, 1400 to 2000 m. E, oak-pine-sweet gum forest. Hu, collected Chiapas-Guatemala border, 1400 m, *M. A. Soto 7622* (AMO). Similar to *L. appendiculata*, but has a completely exposed column.

* ***Lepanthes chapina*** Luer & Behar, Lindleyana 5: 185. 1990. Probably BV. 1600 m. E, *Luer 14680* (MO), without locality data, probably humid, broadleaf forest.

* ***Lepanthes denticulata*** Luer & Behar, Lindleyana 6: 68,69. 1991. Qz, Sa. 2150 m. E, oak-pine forest. Member of *L. stenophylla* group with denticulate sepals. Qz, near Almolonga, col. J. Herrera, *Luer 14885* (MO); Sa, Acatenango, 2150 m, 28 July 1994, *M. Veliz 94.3856* (BIGUA).

* ***Lepanthes disticha*** (A. Rich. & Galeotti) Garay & R. E. Schult., Rhodora 61: 6,7. 1959. AV, BV, Iz, Pe. 600 to 1500 m. E, very humid, deciduous and evergreen forest. Very similar to *L. scopula* but latter is usually a higher-elevation species with ovate-elliptic to shortly acuminate leaves, lip with comma-shaped basal lobes clasping the column. BV, forest near Salamá, 15 Sep. 1990, *Dix 6693* (UVAL).

* ***Lepanthes edwardsii*** Ames, Bot. Mus. Leafl. 1: 4. 1933. AV. 1000 m. E, warm, humid forest. Small yellow flowers. AV, photo M. Behar (UVAL).

Lepanthes excedens Ames & Correll, Gu, Ja, Za. 1800 to 2300 m. E, very humid, mixed oak forest.

* ***Lepanthes fratercula*** Luer & Behar, Lindleyana 5: 188. 1990. BV, Ja. 1800 to 2300 m. E, oak cloud forest. BV, Unión Barrios, 1800 m, 15 Jan. 1989, *M. Behar 9*

(MO); Ja, Miramundo, 2300 m, Mar. 1989, *Dix 6682* (UVAL).

■ ***Lepanthes geniculata*** Luer & Behar, Lindleyana 5: 188. 1990. Cm, Qz. 2500 to 2800 m. E, cool, humid forest. Very similar to *L. almolongae*. Cm, Tecpán, col. Behar & Ibañez, *Luer 14646* (MO); Cm, Acatenango, 2500 m, 27 Oct. 1990, *M. Veliz 90.1337* (AGUAT).

O ***Lepanthes gibberosa*** Ames, see *L. guatemalensis*.

Lepanthes guatemalensis Schltr., AV, BV, Ja, Pr, Za. 1300 to 2400 m. E, very humid, broadleaf and oak-pine forest. *L. gibberosa* and *L. tuerckheimii* are synonyms, see Salazar and Soto (1996). The species with long narrow sepals known as *L. guatemalensis* actually represents a previously undescribed species, *L. stenosepala* Luer & Behar.

* ***Lepanthes herrerae*** Luer & Behar, Lindleyana 6: 70, 71. 1991. Qz. 2000 m. E, oak-pine forest. Qz, near Cantel, coll. J. Herrera, *Luer 14888* (MO).

* ***Lepanthes hondurensis*** Ames, Proc. Biol. Soc. Wash. 44: 43. 1931. Ja. 2300 m. E, oak, cloud forest. Ja, Miramundo, *Luer 14684* (MO).

* ***Lepanthes ibanezii*** Luer & Behar, Lindleyana 5: 191. 1990. AV, Ja. 2000 to 2300 m. E, very humid, cloud forest. AV, Tzalám, near Tactic, 2200 m, 1 July 1989, *Behar & Ibañez 27, Luer 14685* (holotype, MO).

O ***Lepanthes inaequalis*** Schltr., see *L. stenophylla*.

Lepanthes johnsonii Ames, AV, BV, Ja, Za. 1400 to 2400 m. E, very humid forest. Small plants with relatively large flowers.

■ ***Lepanthes juanii*** Luer & Behar, Lindleyana 5: 191. 1990. AV, BV. 1500 m. E, very humid forest. BV, near Purulhá, road to El Pacayal, 5 Jan. 1980, *Luer 14668* (MO); AV, Coban, in cult. Archila, 7 Dec. 1990, *M. Veliz 90.1464* (AGUAT).

* ***Lepanthes lenticularis*** Luer & Behar, Lindleyana 6: 73. 1991. Qz. 2000 to 2200 m. E, oak-pine-*Alnus* forest. Has thick, doubly convex leaves and conspicuously ciliated lateral sepals. Qz, Volcán Santa María, col. J. Herrera, *Luer 14891* (MO).

* ***Lepanthes maxima*** Salazar & Soto Arenas, Orquídea (Mexico) 14: 131. 1996. Hu. 1400 m. E, humid oak-*Podocarpus* forest. Hu, collected Chiapas-Guatemala border, 7 Feb. 1979, 1400 m, *M. A. Soto 4816* (AMO).

* ***Lepanthes mittelstaedtii*** Luer & Behar, Lindleyana 5: 191. 1990. AV. 2200 m. E, oak cloud forest. AV, Tzalám, near Tactic, 2200 m, *Luer & Ibañez 28*, 1 July 1989, *Luer 14666* (holotype, MO).

* ***Lepanthes ordonezii*** Luer & Behar, Lindleyana 12: 34. 1997. To. 2700 m. E, cool oak, pine, fir forest. To, Santa Maria Chiquimula, 2700 m, col. Ordoñez, Aug. 1994, *Behar 131* (MO).

Lepanthes oreocharis Schltr., BV, Pr, Qz, Sa, Za. 1500 to 3500 m. E, very humid, oak cloud forest. The material described as *L. pachyphylla* Luer & Behar (1990) represents this species (Salazar & Soto, 1996).

* ***Lepanthes papillipetala*** Dressler, Rhodora 61: 14. 1959. Cq, Sa. 900 to 1600 m. E, very humid forest. Specimen col. Behar, without locality, *Luer 14574* (MO).

Lepanthes samacensis Ames, AV, BV, Ju, Pr, Za. 1400 to 2000 m. E, humid forest.

C ***Lepanthes scopula*** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 10: 356. 1912. As *L. turrialvae*. AV, BV, Cq, Pr, SR, Za. 1300 to 2500 m. E, very humid, cloud forest. Cited by A & C as *L. turrialvae* Rchb.f., which is a distinct species not

occurring in Guatemala (Luer, 1987). *L. quetzalensis* Luer & Behar is a synonym.

* ***Lepanthes setifera*** Luer & R. Escobar, Amer. Orchid Soc. Bull. 53: 822. AV. 1500 m. E, humid forest. AV, Finca Las Anonas, 14 Feb. 1990, col. H. Ibañez, *Luer 14642* (MO).

Lepanthes stenophylla Schltr., AV, BV, Cm, Cq, Ju, Pr, Za. 1200 to 3000 m. E, very humid, cloud forest. *L. inequalis* Schltr. is a synonym. This complex needs further study.

* ***Lepanthes stenosepala*** Luer & Behar, Lindleyana 12: 36. 1997. AV, BV, Za. 1500–2100 m. E, very humid, broadleaf evergreen forest. This is the species with long narrow sepals illustrated by Hamer (1974) as *L. guatemalensis*. AV, Senahu, 1400 m, 1987, *Teague & Meng 11* (MO); BV, Union Barrios, 1800 m, *Behar 16* (MO) (type specimen).

* ***Lepanthes systole*** Luer, Phytologia 54: 373. 1983. AV. 1000 m. E, broadleaf, very humid forest. Similar to *L. ancylopetala*. AV, near Senahú, 28 Feb. 1981, *Luer, Dix & Dix 5953* (UVAL, SEL); specimen presented in Asociación Guatemalteca de Orquideología show in Antigua, 3 June 1994, *Dix 7443* (UVAL).

* ***Lepanthes tecpanica*** Luer & Behar, Lindleyana 5: 198. 1990. Cm, To. 2700 to 2900 m. E, cool, upland oak-pine forest. Cm, Tecpán, Fca. Santa Apolonia, 2700 m, 27 July 1989, *Luer 14645* col. M. Behar & H Ibañez 30 (MO); To, Cerro Tená, Momostenango, 2900 m, 3 May 1994, *L. Barrios 2182* (BIGUA).

O ***Lepanthes tuerckheimii*** Schltr., see *L. guatemalensis*.

O ***Lepanthes turrialvae*** Rchb.f., see *L. scopula*.

* ***Lepanthes velifera*** Luer & Behar, Lindleyana 6: 79. 1991. AV, BV. 1500 to 1700 m. E, humid forest. BV, Purulhá, 1974, *Dix 6924* (UVAL).

* ***Lepanthes williamsii*** Salazar & Soto Arenas, Orquídea (Mexico) 12: 139. 1992. Cm, Qz, Sa, So. 2200 to 2800 m. E, evergreen, cloud forest, oak, pine, fir. Cm, Tecpán, *M. Behar s.n.* (MO); Sa, Acatenango, 2200 to 2800 m, 28 July 1994, *M. Véliz 94.3855* (BIGUA).

* ***Lepanthes yunckeri*** Ames, Field Mus. Nat. Hist. Bot. Ser. 17: 327. 1939. AV, Cq, Hu, Sa. 1500 to 2000 m. E, oak-pine forest. Sa, Volcán de Agua, *Dix 6139* (UVAL); AV, Carchá, 25 Nov. 1979, *Dix 6014* (UVAL).

* ***Lepanthopsis comet-Halleyi*** Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 39: 70. 1991. BV. 1100 m. E, semi-dry, scrub forest. BV, near Salamá, 1100 m, June 1993, *M. Behar s.n.* (MO); BV, flowered in cult., 28 July 1994, *M. Véliz 94.3846* (BIGUA).

* ***Lepanthopsis floripecten*** (Rchb.f.) Ames, Bot. Mus. Leafl. 1: 11. 1933. AV, BV. 1400 to 1700 m. E, humid, oak-pine forest. BV, near Unión Barrios, Jan. 1980, *Dix 4122* (UVAL).

Liparis arnoglossophylla Rchb.f. ex Hemsl., Es, Hu, Qz, Za. 2000 to 2800 m. T, cool, humid forest.

* ***Liparis cordiformis*** C. Schweinf., Bot. Mus. Leafl. 4: 110. 1937. 2150 m. T. Cited for Guatemala by Hamer (1989).

O ***Liparis elata*** Lindl., see *Liparis nervosa*.

Liparis fantastica Ames & C. Schweinf., Bot. Mus. Leafl. 2: 97, 98. 1934. Cm, Hu, SM, So. 2000 to 3000 m. T, dense, humid forest.

* ***Liparis lindeniana*** (A. Rich. & Galeotti) Hemsl., Gard. Chron. n.s., 11: 559. 1879. AV, BV. 1100 to 1500 m. T, open slopes, roadsides. AV, near Cobán, *Tuerckheim II*

1395 (BM). Cited by A & C as *L. vexillifera,* which is a much larger plant.

C ***Liparis nervosa*** (Thunb.) Lindl., Gen. Sp. Orch. Pl. 26. 1830. As *Liparis elata.* AV, Iz, So, Su. 0 to 1300 m. T, decaying trunks and soil in humid forest.

Liparis vexillifera (La Llave & Lex.) Cogn., AV, BV, Cm, Es, Gu, Hu, Qc. 1000 to 1500 m. T, open slopes, lava flows. Qc, *Proctor 25083* (MO). One erect, fleshy leaf, relatively large, brown to purple flowers with cymbiform deflexed lip.

Lockhartia hercodonta Rchb.f. ex Kraenzl., Iz, Pe, Qc, So. 800 to 1500 m. E, humid forest. White flowers.

Lockhartia oerstedii Rchb.f., AV, BV, Hu, Re, Sa, SM, Su, Za. 600 to 2900 m. E, humid forest. Small yellow flowers, with small callus made up of central hook and several central crests, which terminate in digitiform processes.

* ***Lockhartia* aff. *oerstedii*** Rchb.f., AV, Hu. 600 to 1600 m. E, dense, very humid, broadleaf forest. Distinguished by narrow foliaceous stem and elongate flowers. The following fit this concept: Hu, between Las Palmas and Chacula, 1400–1600 m, 1 Sep. 1942, *Steyermark 51744* (AMES); AV, Chamá to Cobán, 1000 m, *Johnson 556* (F).

* ***Lockhartia pittieri*** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 12: 216. 1913. Iz, Pe, So. 800 to 1000 m. E, very humid forest. Iz, 8 Sep. 1988, 940 m, *Martínez, Stevens, Diaz & Droege 23567* (MEXU); Pe, high forest, Los Arcos/Cadenas road, *Martinez s.n.* (AMO).

C ***Lockhartia verrucosa*** Rchb.f., Hamburger Garten-Blumenzeitung 15: 53. 1859. As *L. oerstedii* in part. Sa, SR, Su. 800 to 1500 m. E, seasonally dry forest. Mid-Pacific slopes. Largest species in Guatemala, distinguished by large warty lip cushion.

Su, near Chicacao, 14 Apr. 1979, *Dix 8032* (UVAL).

* ***Lycaste balsamea*** A. Rich., in Gerard, Portef. Hort. 1: 131, t. 16. 1847. SR. 1000 to 1400 m. E, dry oak forest. Type specimen is from Guatemala; material from Santa Rosa fits the description.

* ***Lycaste bradeorum*** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 38. 1923. Cq, Iz, Pe. 250 m E, dry, warm forest. Pe, in cult. Guatemala City, 22 Aug. 1983, col. E. Duarte, *M. Sanchez 415* (AGUAT).

Lycaste cochleata Lindl., AV, BV, Cq, Iz, Ja, Pe, Za. 200 to 1800 m. E, L, humid forest with marked dry season.

* ***Lycaste consobrina*** Rchb.f., Bot. Zeit. 10: 669. 1852. Pe, Za. 200 to 1000 m. E, warm, semi-humid forest. Za, *Dix 7431* (UVAL).

Lycaste cruenta Lindl., AV, BV, Cq, Es, Gu, Ju, Pr, SR, Su, Za. 1000 to 1800 m. E, L, dry to humid forest. Probably represents a species complex.

Lycaste deppei (Lodd.) Lindl., AV, BV, Cq, Hu, Za. 1100 to 1500 m. E, L, very humid forest.

* ***Lycaste dowiana*** Endres & Rchb.f., Gard. Chron. 2: 194. 1874. AV, BV, Ju, Za. 800 to 1500 m. E, warm, humid forest. AV, bought Cobán, 1983, *Dix 6182* (UVAL).

Lycaste lasioglossa Rchb.f., AV, BV, Iz, Pr. 800 to 1400 m. E, T, warm, humid forest.

* ***Lycaste macrophylla* subsp. *xanthocheila*** Fowlie, Lasca Leaves p. 45. 1964. Iz. 800 m. E, warm, very humid, broadleaf forest. Iz, Mar. 1985, *Dix 5106* (UVAL).

C ***Lycaste skinneri*** (Bateman ex Lindl.) Lindl. *L. virginalis*. AV, BV, Cq, Ja, Ju, Pr, Qc, SM, Za. 1400 to 2000 m. E, L, very humid forest.

C ***Lycaste smeeana*** Rchb.f., Gard. Chron. 20: 198. 1883. As × *L. smeeana* Rchb.f. ex Warner & Williams, a supposed natural hybrid. Cq, Iz, Pr, Za. 1500 to 1700 m. E, oak forest on humid ridges in otherwise dry areas. This species has been supposed by many to be a natural hybrid of *L. deppei* and *L. skinneri* and was cited as such by A & C. The type sheet (K) and the type description clearly represent the form that has unofficially been known in Guatemala as *L. skinneri* var. *ipala*. This form was illustrated by Tinschert (1983). The known populations are isolated, and flowers are remarkably uniform in size, color, and shape suggesting very limited gene flow with *L. skinneri*. The species can be separated from *L. skinneri* by flowering period, May to August, compared to November to February for *L. skinneri*; flowers are produced with the new growth, in contrast to being borne by mature pseudobulbs in *L. skinneri*; the flowers are smaller, the densely spotted lip has a short callus with an obscure keel, and sepals are narrow and white or nearly white.

* ***Lycaste suaveolens*** Summerh., Bot. Mag. t. 9231. 1931. AV, BV, Pr, Za. 1300 to 1800 m. E, L, humid, oak forest. Described as *L. aromatica* var. *maius* HBK. This species forms hybrid swarms with *L. cruenta*. Za, above Río Hondo, Sierra de las Minas, 1300 m, Apr. 1981, *Dix 4645* (UVAL).

O ***Lycaste virginalis*** (Scheidw.) Lindl., see *L. skinneri*.

Macradenia brassavolae Rchb.f., AV, Iz. 0 to 900 m. E, humid, warm forest.

C ***Macroclinium bicolor*** (Lindl.) Dodson, Icon. Pl. Trop. 10: pl.937. 1984. *Notylia bicolor*. AV, BV, Cm, Gu, Ja, Qz, Sa. 1400 to 2000 m. E, humid forest, especially on cypress.

* ***Macroclinium paniculatum*** (Ames & C. Schweinf.) Dodson, Icon. Pl. Trop. pl. 938. 1984. AV. 600 m. E, warm, humid forest. AV, Archila, s.n. 1994, photo UVAL.

Malaxis acianthoides (Schltr.) Ames, Es, So. 1800 to 2500 m. T, cool forest.

Malaxis aurea Ames, Gu, Hu. 1400 to 1900 m. T, swamp, humid forest and pasture. Unifoliate, yellow-green flowers, boat-shaped lip with a median tooth.

Malaxis brachyrrhynchos (Rchb.f.) Ames, see also *M. fastigiata*. BV, Cm, Gu, Qz, So, SR. 1300 to 2700 m. T, open slopes, cool pine or hardwood forest. Lip tapering gradually towards apex, bowl much deeper than in *M. fastigiata*.

C ***Malaxis brachystachys*** Rchb.f., Linnaea 22: 834. 1849. As *M. corymbosa*. Cm, Gu, Qz, Sa, Za. 1600 to 2800 m. T, cool, humid forest in humus. Green flowers and a broadly triangular, apiculate lip distinguish this species. Za, Sierra de las Minas, 2175 m, July 1994, *M. Dix 7548* (UVAL).

Malaxis carnosa (HBK) C. Schweinf., Cm, Es, Gu, Hu, Pr. 1500 to 2800 m. T, slopes, meadows and grassy areas under pine. Fleshy recurved lip with a median tooth.

O ***Malaxis corymbosa*** (S. Watson) Kuntze, see *M. brachystachys*.

Malaxis ehrenbergii (Rchb.f.) Kuntze, Cm, Hu, To. 2000 to 3700 m. T, cool, rocky slopes and open pasture; purple flowers.

Malaxis excavata (Lindl.) Kuntze, Hu. 2300 m. T, cool, wet forest.

C ***Malaxis fastigiata*** (Rchb.f.) Kuntze, Rev. Gen. Pl. 2: 673. 1881. As *M. brachyrrynchos* in part. Hu. 2600 m. T, oak forest on limestone. Lip has shallow bowl and is abruptly narrowed near the apex. Hu, 10.7 mi. SW San Juan Ixcoy, Los Cuchumatanes, 18 July 1971, *Stevens 4269* (MO).

C ***Malaxis histionantha*** (Link, Klotzsch & Otto) Garay & Dunst., Venez. Orch. 6: 226. 1976. As *M. parthonii*. AV, Cq, Gu, Hu, So, Su. 1500 to 2300 m. T, humid, open or dense forest.

Malaxis lepanthiflora (Schltr.) Ames, AV, BV, Gu, Hu, Ja, Ju, Pr, Za. 1800 to 3000 m. T, E, very humid, dense forest.

Malaxis lepidota (Finet) Ames, BV, Gu, Hu, Sa, Za. 1200 to 2000 m. T, very humid, densely forested slopes, dry slopes and lava flows. BV, near Llano Largo, Salamá, col. Mendoza, flowered in cult. 18 Sep. 1993, *Dix 7078* (UVAL).

Malaxis majanthemifolia Schltr. & Cham., AV, BV, Cm, Sa, To. 1200 to 2000 m. T, E, slopes in dense forest and barrancas. Olive green with cordate leaves.

Malaxis pandurata (Schltr.) Ames, AV, Gu, Su. 1500 to 2000 m. T, L, E, wet forest or cliffs.

O ***Malaxis parthonii*** Morren, see *M. histionantha*.

* ***Malaxis salazarii*** Catling, Orquídea (Mexico) 12: 98. 1990. BV, Ja, Za. 1300 to 2600 m. T, cloud forest, oak, fir. Some specimens currently identified as *M. unifolia* probably belong to this species, which is distinguished by a more fleshy lip with convergent lateral lobes and broader base. BV, between El Chol and Aguas Calientes, 1300 m, 10 July 1995, *Dix 7504* (UVAL); Ja, Mataquescuintla, 3 July 1986, *P. M. Catling G7080* (AMO).

Malaxis soulei L. O. Williams, BV, Gu, Hu, So, Za. 1200 to 3800 m. T, upland meadows, dry to humid open forest. Mixed pine, fir, cypress.

Malaxis steyermarkii Correll, AV, BV, Hu, Za. 1600 to 2300 m. T, mixed cloud forest.

Malaxis unifolia Michx., BV, Cm, Gu, Hu, Za. 1600 to 2300 m. T, humid soil. See also *M. salazarii*.

* ***Malaxis wendlandii*** (Rchb.f.) L. O. Williams, Ann. Missouri Bot. Gard. 33: 136. 1946. Za. 1600 m. T, open, pine-oak forest. Listed by Hamer (1981) as *Liparis wendlandii*. Za, above Río Hondo, *Dix s.n.* (UVAL).

Masdevallia chontalensis Rchb.f., AV, BV, Iz. 1100 to 1700 m. E, very humid, dense forest.

O ***Masdevallia erythrochaete*** Rchb.f., see *Dracula erythrochaete* Luer as doubtful or unconfirmed species.

Masdevallia floribunda Lindl., AV, Iz. 600 to 1400 m. E, warm, humid forest. See also *M. tuerkheimii*.

O ***Masdevallia jalapensis*** Kraenzl., see *Pleurothallis jalapensis*.

O ***Masdevallia linearifolia*** Ames, see *Dryadella linearifolia*.

O ***Masdevallia pusilla*** Rolfe, see *Dracula pusilla*.

O ***Masdevallia simula*** Rchb.f., see *Dryadella simula*, an excluded species, and *D. guatemalensis*.

Masdevallia tubuliflora Ames, AV, Pe. 300 to 1000 m. E, warm, humid gallery forest. Pe, Finca Tanhoc, Poptún, 1000 m, *Dix 6048* (UVAL); AV, Cubilguitz, 350 m, *Tuerckheim 512* (US).

* ***Masdevallia tuerckheimii*** Ames, Orch. Fasc. 2: 265. 1908. *M. floribunda* in part. AV, Qc. 600 to 1000 m. E, very humid, dense, lowland forest. Qc, Ixcán Grande, 2 Mar. 1977, *Dix 151* (UVAL).

* ***Maxillaria aciantha*** Rchb.f., Bot. Zeit. 10: 858. 1852. *M. friedrichsthalii* in part. AV, Gu, Iz, Pe, Za. 200 to 1500 m. E, warm,

humid forest. AV, 1000 m, 20 Oct. 1976, *Dix 76-51* (UVAL); Iz, Las Escobas, 700 m, 9 Dec. 1985, *M. W. Dix 7996* (UVAL); Gu, near Villa Canales, 1100 m, Apr. 1974, *Dix 7997* (UVAL); Pe, Yaxhá, June 1989, *Dix 7999* (UVAL).

* ***Maxillaria acutifolia*** Lindl., Bot. Reg. 25, misc. 29. 1839. AV. 900 m. E, dense, warm, humid forest. Part of *M. rufescens* complex. AV, col. Mittelstaedt, *Dix 6616* (UVAL).

Maxillaria alba (Hook.) Lindl., AV. 300 to 1200 m. E, warm humid, dense forest.

Maxillaria anceps Ames & C. Schweinf., AV. 1000 to 1600 m. E, dense humid forest.

* ***Maxillaria angustissima*** Ames & C. Schweinf., Bot. Mus. Leafl. 3: 41. 1934. AV. 1000 m. E, warm humid forest. AV, near Senahu, 1000 m, July 1995, col. Archila, *Dix 7533* (UVAL).

C ***Maxillaria atrata*** Rchb.f., Beit. Orch. Centr. Amer. 31, t. 6, figs. 1–3. 1866. *M. cucullata* in part. E, cool, humid forest. Species description is based on a Warscewicz specimen from Guatemala. Hu, Ja. 1800 to 2200 m.

* ***Maxillaria brunnea*** Rchb.f., Bonplandia 2: 281. 1854. AV, Iz. 300 to 1000 m. E, warm, humid forest. AV, col. Archila, 3 Dec. 1991, *Dix 6828* (UVAL).

Maxillaria camaridii Rchb.f., AV, Qc. 300 to 1000 m. E, warm, humid forest.

Maxillaria cobanensis Schltr., AV, BV, Cq, Iz, Su. 1100 to 1500 m. E, humid, mid-elevation forest.

* ***Maxillaria confusa*** Ames & C. Schweinf., Sched. Orch. 8: 57. 1925. AV, Iz. 600 to 1500 m. E, relatively warm, very humid forest. AV, in cult. W. del Pinal, *Dix 6610* (UVAL); Iz, Finca La Francia, July 1986, *M. W. Dix 7210* (UVAL).

Maxillaria crassifolia (Lindl.) Rchb.f., AV, Iz, Pe, SR. 0 to 1500 m. E, humid forest. SR, Finca El Paraiso, Sep. 1976, *Dix 90* (UVAL).

Maxillaria cucullata Lindl., AV, BV, Cm, Cq, Es, Gu, Hu, Iz, Ja, Ju, Pr, Qc, SM, Su, Za. 1000 to 2500 m. E, L, humid, broadleaf and conifer forest. See also *M. atrata*, *M. praestans*, *M. rhombea*, an excluded species, and *M. soconuscana*.

O ***Maxillaria curtipes*** Hook., see *M. houtteana*.

Maxillaria densa Lindl., AV, BV, Cm, Cq, Es, Gu, Hu, Iz, Ja, Ju, Pr, Qc, Qz, Re, Sa, Su, Za. 300 to 1900 m. E, L, humid forest. See also *M. hagsateriana*. White to pink flowers.

Maxillaria elatior Rchb.f., AV, Es, Iz, Qz, Re, SM, SR, Su, Za. 200 to 1500 m. T, E, warm, humid forest.

Maxillaria friedrichsthalii Rchb.f., AV, BV, Es, Gu, Iz, Ju, Pe, Pr, Qc, Qz, Re, SR, Sa, Su, Za. 0 to 1850 m. E, L, generally warm, dry to humid forest. See also *M. aciantha*, *M. scorpioidea*.

* ***Maxillaria fulgens*** (Rchb.f.) L. O. Williams, Ann. Missouri Bot. Gard. 28: 425. 1941. AV, Iz, Za. 800 to 1200 m. E, warm, very humid, broadleaf forest. AV, Senahú, 1100 m, 16 Dec. 1981, *Dix 4413* (UVAL); Za, near Gualán, 900 m, Apr. 1983, *Dix 4949* (UVAL).

* ***Maxillaria hagsateriana*** Soto Arenas, Orquídea (Mexico) 12: 252. 1992. *M. densa* in part. AV, BV, Cm, Es, Gu, Hu, Ja, Pr, Qc, Qz, Sa, Su, Za. 1200 to 2700 m. E, occasionally T, dense, broadleaf, very humid to pluvial forest. Distinguished from *M. densa*, by maroon, almost black flowers. BV, Purulhá, 3 Oct. 1976, *Dix 004* (UVAL).

* ***Maxillaria hedwigae*** Hamer & Dodson, Icon. Pl. Trop. 8: pl.800. 1982. *M.*

rufescens in part. Iz, Pe, Za. 0 to 1000 m. E, warm, very humid, broadleaf forest. Pe, between Aguada Tintal and Carmelita, 17 Feb. 1995, *M. W. Dix 7862* (UVAL); type specimen is from Iz, Guatemala.

C ***Maxillaria houtteana*** Rchb.f., Hamb. Gartenz. 14: 212. 1858. *M. curtipes*. AV, BV, Hu, Za. 1500 to 2500 m. E, cloud forest. According to Soto-Arenas (1988), this is the correct name for the species that has commonly been known as *M. curtipes*. The type specimen of *M. curtipes* is actually *M. variabilis*. Guatemalan specimens do not completely fit the description of *M. houtteana* and may represent another species. Za, San Lorenzo, 1750 m, 31 Mar. 1988, *M. W. Dix 88-4* (UVAL).

C ***Maxillaria macleei*** Bateman ex Lindl., Bot. Reg. 26 Misc. 70. 1840. As *M. uncata*. AV, BV, Iz, Pe, Su, Za. 0 to 1200 m. E, warm, humid forest. According to Carnevalli and Soto-Arenas (pers. comm.), *M. uncata* is a South American species with shorter leaves and callus, and white to cream flowers in contrast to the larger Central American plants with striped flowers.

* ***Maxillaria maleolens*** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 233. 1923. AV. 700 to 1000 m. E, warm, humid forest. In cult., W. del Pinal, probably AV, *Dix 6618* (UVAL).

Maxillaria meleagris Lindl., AV, BV, Pe, Pr, Za. 200 to 1200 m. E, warm, humid forest.

Maxillaria nagelii L. O. Williams, AV, Cq. 1200 to 1800 m. E, humid, cloud forest.

Maxillaria nasuta Rchb.f., AV, Iz. 200 to 1600 m. E, humid, moist forest.

* ***Maxillaria pachyacron*** Schltr., Repert. Spec. Nov. Regni Veg. 9: 165. 1911. AV, Za. 800 to 1400 m. E, very humid, dense, broadleaf forest. AV, Quixal, 25 Nov. 1979, *Dix 79-48* (UVAL).

C ***Maxillaria parviflora*** (Poepp. & Endl.) Garay, Bot. Mus. Leafl. 11: 15. 1943. As *M. purpurea*. AV, BV, Iz, Qz, Pe, So, Su. 100 to 1300 m. E, L, warm, lowland forest.

C ***Maxillaria praestans*** Rchb.f., Gard. Chron. n.s. 23: 566. 1885. *M. cucullata* in part. AV, BV, Gu, Ja, Ju, Pr, Za. 1500 to 2200 m. E, cool, humid, oak-pine or broadleaf forest.

Maxillaria pulchra (Schltr.) L. O. Williams, AV, Iz, Pe. 0 to 700 m. E, warm, very humid forest.

O ***Maxillaria purpurea*** (Spreng.) Ames & Correll, see *M. parviflora*.

* ***Maxillaria ramosa*** Ruiz & Pav., Syst. Veg. Fl. Peruv. et Chil. 1: 226. 1798. AV. 600 m. E, warm, humid, broadleaf forest. Pendent plant with fan-like clusters of lanceolate leaves at the nodes. *M. repens* L. O. Williams is a synonym. Finca Sachichaj, AV, 16–19 Feb. 1992, M. A. Soto, G. A. Salazar & M. W. Dix, as *Dix 6986* (UVAL).

Maxillaria ringens Rchb.f., AV, Iz, Qz, Re, So, Su. 0 to 1700 m. E, warm, humid forest.

Maxillaria rufescens Lindl., see *M. acutifolia* and *M. hedwigae*. Av, Pe. 0 to 700 m. E, dense, humid forest.

* ***Maxillaria scorpioidea*** Kraenzl., Svensk. Vet. Akad. Handl. 46: 71. 1911. *M. friedrichsthalii* in part. AV, Iz, Pe, Pr, SR. 200 to 1300 m. E, L, dry, mixed oak-pine forest and humid, evergreen forest. AV, Fray Bartolomé Las Casas, 1100 m, 14 Apr. 1979, *Dix 8001* (UVAL); Pe, between Tintal and Corozal, 230 m, 17 Feb. 1995, *Dix 7864* (UVAL); SR, Finca El Paraiso, 1200 m, 4 Feb. 1991, *M. W. Dix 6921* (UVAL).

* ***Maxillaria soconuscana*** Breedlove & Mally, Amer. Orchid Soc. Bull. 58: 1234. 1989. Qz. 2300 m. E, humid, evergreen forest, pine-oak. Differs from *M. praestans* in the much longer floral bract, which greatly exceeds the ovary, and the presence of 2 longitudinal keels on the callus. Soto and Chiang (1992) suggested that *M. soconuscana* is synonymous with *M. atrata*. However, the drawing on which their conclusion is based (Reichenbach, 1866) has shorter floral bracts and no keels visible on the lip. Qz, near Cantel, Nov. 1995, P. P. & A. Torres s.n. *Dix 9002* (UVAL).

* ***Maxillaria strumata*** (Endres & Rchb.f.) Ames & Correll, Bot. Mus. Leafl. 11: 17, 1943. AV. 900 m. E, warm, humid forest. AV, La Escalera, col. Mittelstaedt, Sep. 1994, 900 m, *Dix 7527* (UVAL).

Maxillaria tenuifolia Lindl., AV, BV, Cq, Iz, Ju, Pe, Pr, SR, Za. 100 to 1700 m. E, L, dry to humid, warm to cool forest.

* ***Maxillaria tonsoniae*** Soto Arenas, Orquídea (Mexico) 12: 245. 1992. BV. 1000 m. E, humid forest. Species very similar to *M. histrionica* (Rchb.f.) L. O. Williams. BV, flowered in cult., W. del Pinal, col. O. Mittelstaedt, *Dix 6689* (UVAL).

O ***Maxillaria uncata*** Lindl., see *M. macleei*.

* ***Maxillaria valenzuelana*** (A. Rich.) Nash, Bull. Torrey. Bot. Club. 34: 121. 1907. AV. 1300 m. E, very humid forest, low branches. AV, 1300 m, 1979, P. Meng, photo (UVAL). Specimen still in cultivation.

Maxillaria variabilis Bateman ex Lindl., AV, BV, Cm, Cq, Es, Gu, Hu, Iz, Ja, Ju, Pe, Pr, Qz, Re, Sa, SM, SR, Su, Za. 0 to 2100 m. E, T, warm to cool, humid forest. Widely distributed, may represent several species.

Meiracyllium trinasutum Rchb.f., includes *M. wendlandii*. Cq, Es, Hu, Qz, Re, Sa, SR, Su. 400 to 1100 m. E, L, tropical dry to humid forest, usually with marked dry season.

O ***Meiracyllium wendlandii*** Rchb.f., see *M. trinasutum*.

C ***Mesadenella petenensis*** (L. O. Williams) Garay, Bot. Mus. Leafl. 28: 335. 1980. As *Spiranthes tonduzii*. Iz, Pe. 0 to 500 m. T, open areas. According to Catling and Catling (1988) *M. tonduzii* Schltr. is a Costa Rican species, distinct in lip and petal shape.

C ***Mesadenus polyanthus*** (Rchb.f.) Schltr., Beih. Bot. Centralbl. 37: 369. 1920. *Spiranthes polyantha*. Za. 300 to 900 m. L, T, open areas and lava flows. Mixed conifer and hardwood forest.

* ***Mesospindium warscewiczii*** Rchb.f., Bot. Zeit. 10: 929. 1852. AV. 1200 to 1300 m. E, very humid, broadleaf forest. AV, in cult., col. 10 km from Cobán, O. Mittelstaedt, 16 Sep. 1995, *Dix 8017* (UVAL).

C ***Microthelys rubrocalosa*** (Rob. & Greenm.) Garay, Bot. Mus. Leafl. 28: 338. 1980. *Spiranthes rubrocalosa*. Cm. 2000 to 3000 m. T, cypress, fir and *Arbutus* forest. Very small plant at high altitudes.

Mormodes buccinator Lindl., Iz. 0 to 200 m. E, rotten trunks, open forest. Based on Lewis specimen supposedly from Quiriguá.

O ***Mormodes histrio*** Lindl. & Rchb.f., see *M. lineata*.

C ***Mormodes lineata*** Bateman ex Lindl., Bot. Reg. 27: Misc. p. 52. 1841. Includes *M. histrio*. AV, BV, Cm, Cq, Pr, Qz, Re, Sa, Su, Za. 400 to 1800 m. E, evergreen and deciduous, humid forest. *M. lineata* is a synonym for *M. histrio* Bateman ex Lindl. and *M. warscewiczii* auct. non Kl.

* ***Mormodes nagelii*** L. O. Williams, Amer. Orchid Soc. Bull. 9: 153. 1940. As *M. stenoglossum*. AV, BV. 1200 to 1500 m. E, rotting trunks and fence posts, very humid forest. AV, Finca El Volcán, July 1979, W. Dix, *Dix 2277* (UVAL).

* ***Mormodes sotoana*** Salazar, Orquídea (Mexico) 12: 261. 1992. AV. 1100 m. E, warm, lowland evergreen forest or plantations, on rotten trunks. AV, Choval, 1100 m, Feb. 1990, *Salazar et al. 4450* (isotype, UVAL).

O ***Mormodes stenoglossum*** Schltr., an excluded species, see *M. nagelii*.

Mormolyca ringens (Lindl.) Schltr., AV, BV, Es, Iz, Ja, Ju, Pe, Pr, Re, Sa, Za. 0 to 1400 m. E, L, warm humid forest.

* ***Myoxanthus octomeriae*** (Schltr.) Luer, Selbyana 7: 47. 1982. AV. 800 to 1100 m. E, very humid, warm forest. AV, Finca Westphalia, flowered in cult. W. del Pinal, *Dix 6639* (UVAL).

* ***Myoxanthus speciosus*** (Luer) Luer, Selbyana 7: 51. 1982. Pr, Za. 2000 to 2400 m. E, cloud forest. Za, Río Hondo, 2175 m, July 1984, *Dix 7852* (UVAL); Za, Río Hondo, 2250 m, 5–15 July 1986, *P. Catling s.n.* (UVAL).

* ***Myrmecophila brysiana*** (Lem.) G. C. Kenn., Orchid Digest 43: 205. 1979. Iz, Pe. 0 to 300 m. E, swampy lowland areas. Flowers have 3 yellow keels on lip and brownish sepals and petals. Iz, Bahía la Graciosa, 3 m, 31 Oct. 1994, *M. W. Dix 7993* (UVAL).

▣ ***Myrmecophila exaltata*** (Kraenzl.) G. C. Kenn., Orchid Digest 43: 205. 1979. Iz. 0 to 300 m. E, humid areas. Type specimen from Iz, Livingston, Río Dulce, 11 Apr. 1925. Ulmcke. Enclosed column, purple flowers.

C ***Myrmecophila tibicinis*** (Bateman) Rolfe, Orchid Rev. 25: 51. 1917. *Laelia tibicinis*. Iz, Pe. 0 to 300 m. E, humid forest at water's edge.

C ***Myrmecophila wendlandii*** (Rchb.f.) G. C. Kenn., Orchid Digest 42: 205. 1979. *Laelia wendlandii*. AV, Cm, Cq, Pr, Za. 300 to 1200 m. E, dry, or very dry, oak forest.

O ***Nageliella angustifolia*** (Booth ex Lindl.) Ames & Correll, see *N. gemma*.

C ***Nageliella gemma*** (Rchb.f.) Dressler, Taxon 15: 242. 1966. *N. angustifolia*. BV, Es, Cm, Gu, Hu, Qc, Sa, So, To. 1500 to 2100 m. L, E, dry to humid forest. Oak, pine, cypress.

Nageliella purpurea (Lindl.) L. O. Williams, AV, BV, Cm, Cq, Es, Gu, Hu, Ja, Ju, Pr, Qc, SR, Su, Za. 1000 to 2000 m. L, E dry to humid forest. Oak, pine, cypress.

C ***Nidema boothii*** (Lindl.) Schltr., Repert. Spec. Nov. Regni Veg. Beih. 17: 43. 1922. *Epidendrum boothii*. AV, BV, Cm, Cq, Hu, Iz, Ju, Pe, Pr, Qc, Re, Sa, SM, SR, Su, Za. 0 to 1350 m. E, dense, tropical forest.

Notylia barkeri Lindl., AV, BV, Cq, Es, Iz, Pe, Re, SR. 0 to 1600 m. E, dry to humid forest, swamps, and plantations.

O ***Notylia bicolor*** Lindl., see *Macroclinium bicolor*.

* ***Notylia orbicularis*** A. Rich. & Galeotti, Ann. Sci. Nat. sér.3, 3: 26. 1845. Gu, Hu. 800 to 1500 m. E, broadleaf or oak-pine forest and coffee plantations. Salazar (1994) has recently synonymized *N. tridachne* with *N. orbicularis*. Hu, 30 km SE of La Mesilla, 850 m, 14 Apr. 1978, *Téllez et al. 635* (MEXU); Gu, Guatemala City, 1500 m, 10 May 1989, *M. Véliz 89.383* (AGUAT).

C ***Notylia trisepala*** Lindl. & Paxton, Paxton's Fl. Gard. 3: 45. 1852. *Notylia barkeri* in part. AV, BV, Es, Iz, Pe, Re,

SM, SR, Su. 0 to 1600 m. E, humid forest and coffee plantations.

C ***Ocampoa mexicana*** A. Rich. & Galeotti, Ann. Sci. Nat. sér 3, 3: 31. 1845. *Cranichis mexicana*. Cm. 1600 to 2150 m. T, sandy and calcareous soil in oak-pine forest.

O ***Odontoglossum bictoniense*** (Bateman) Lindl., see *Rhynchostele bictoniensis*.

O ***Odontoglossum cervantesii*** La Llave & Lex., see *Rhynchostele cervantesii*, an excluded species.

O ***Odontoglossum convallarioides*** (Schltr.) Ames & Correll, see *Osmoglossum convallarioides*.

O ***Odontoglossum cordatum*** Lindl., see *Rhynchostele cordata*.

O ***Odontoglossum egertonii*** Lindl., see *Osmoglossum egertonii*.

O ***Odontoglossum grande*** Lindl., see *Rossioglossum grande*.

O ***Odontoglossum laeve*** Lindl., see *Oncidium laeve*.

O ***Odontoglossum maculatum*** La Llave & Lex., see *Rhynchostele maculata*.

O ***Odontoglossum majale*** Rchb.f., see *Rhynchostele majalis*.

O ***Odontoglossum pulchellum*** Bateman ex Lindl., see *Osmoglossum pulchellum*.

O ***Odontoglossum rossii*** Lindl., see *Rhynchostele rossii*.

O ***Odontoglossum stellatum*** Lindl., see *Rhynchostele stellata*.

O ***Odontoglossum stenoglossum*** (Schltr.) L. O. Williams, see *Oncidium stenoglossum*.

O ***Odontoglossum uroskinneri*** Lindl., see *Rhynchostele uroskinneri*.

O ***Odontoglossum williamsianum*** Lindl., see *Rossioglossum williamsianum*.

* ***Oeceoclades maculata*** (Lindl.) Lindl., Gen. & Sp. Orch. Pl. 237. 1833. Pe. 200 m. T, savanna. Pe, edge of Lake Peten Itzá, 30 Apr. 1995, *M. W. Dix 8004* (UVAL).

* ***Oerstedella aberrans*** (Schltr.) Hamer, Icon. Plant. Trop. 9: pl. 891. 1983. AV, Gu, Pr, Sa, Za. As *Epidendrum centropetalum* in part. 1800 to 2200 m. E, cloud forest. Illustrated as *E. centropetalum* by Oesterreich (1967). Type from Guatemala. Distinguished from *O. centropetala* by its bifid callus. Most Guatemalan material we have seen belongs to this species.

C ***Oerstedella centropetala*** Rchb.f., Bot. Zeit. 10: 932. 1852. *Epidendrum centropetalum*. AV, Cm, Es, Gu, Ju, Sa, Za. 1600 to 2400 m. E, T, humid forest. Has a trifid callus. Needs a thorough revision of all museum material from Guatemala. W. del Pinal, in cult., without locality *Dix 7917* (UVAL).

C ***Oerstedella myriantha*** (Lindl.) Hágsater, Orquídea (Mexico) 8: 24. 1981. *Epidendrum verrucosum* var. *myrianthum*. AV, BV, Cm, SR. 1300 to 1800 m. T, open, oak forest, semi-dry.

C ***Oerstedella pansamalae*** (Schltr.) Hágsater, Orquídea (Mexico) 8: 24. 1981. *Epidendrum pansamalae*. AV, BV. 1400 to 1600 m. E, very humid, open forest.

C ***Oerstedella schweinfurthiana*** (Correll) Hágsater, Orquídea (Mexico) 8: 24. 1981. *Epidendrum schweinfurthianum*. AV, Pr, Su, Za. 1500 to 2400 m. T, mixed forest.

C ***Oerstedella verrucosa*** (Sw.) Hágsater, Orquídea (Mexico) 8: 24. 1981. *Epidendrum verrucosum*. AV, BV, Cm, Cq, Hu, Qc, SM. 1200 to 2000 m. T, open, oak forest to dense, humid forest.

Oncidium ampliatum Lindl., AV, Cq, Pr, SR. 200 to 600 m. E, L, dry forest.

Oncidium ansiferum Rchb.f., AV, Za. 800 to 2500 m. E, habitat unknown. Concept is unclear; *O. delumbe* Lindl., type from Guatemala, is believed to represent this species. Mittelstaedt s.n., flowered in cult., Dec. 1988, *Dix 6813* (UVAL), appears to be identical to the drawing of the type *O. delumbe* with the narrowest portion of the tabula infrastigmática immediately below the stigma.

Oncidium ascendens Lindl., AV, Cq, Es, Ju, Pe, Za. 0 to 1500 m. E, dry to humid warm forest.

Oncidium bicallosum Lindl., AV, Gu, Qc, Re, Sa. 1600 to 1900 m. E, humid oak, mixed oak-pine, or cypress forest.

O ***Oncidium brachyandrum*** Lindl., see *O. graminifolium* Lindl.

O ***Oncidium carthagenense*** (Jacq.) Sw., see *O. oerstedii* Rchb.f.

Oncidium cavendishianum Bateman, Cm, Gu, Sa. 1400 to 2000 m. E, humid oak or oak-cypress forest.

Oncidium cebolleta (Jacq.) Sw., Cm, Ja, Pe, Pr, SR, Za. 0 to 1500 m. E, semi-arid regions.

Oncidium cristagalli Rchb.f., AV, BV, Cm, Es, Hu, Iz, Qz, Re, Sa, Su, Za. 700 to 1500 m. E, on twigs, humid rather warm forest.

C ***Oncidium endocharis*** Rchb.f., Gard. Chron. n.s. 21: 206. 1884. *O. johannis*. AV, BV, Za. 1300 to 2200 m. E, T, very humid forest. Possibly represents more than one species, but further study is needed.

Oncidium ensatum Lindl., AV, Iz, Pe. 0 to 600 m. T, open savanna.

* ***Oncidium exauriculatum*** (Hamer & Garay) R. Jiménez, Orquídea (Mexico) 12: 270. 1992. AV, Iz. 900 to 1400 m. E, warm, very humid forest. Illustrated by Hamer (1981) as *O. cheirophorum* var. *exauriculatum*. AV, near Cobán, cult. Archila, in flower, 1 Dec. 1994, *Dix 7488* (UVAL).

* ***Oncidium fasciculatum*** Hágsater, Orquídea (Mexico) 8: 13. 1980. As *O. oblongatum*. AV, BV, Cm, Hu, Pr, Za. 1500 to 2200 m. E, very humid, broadleaf, cloud forest. *O. oblongatum* does not occur in Guatemala. BV, Purulhá, Sep. 1978, *Hágsater, Dix & Dix* (holotype) *5332* AMO, paratype (UVAL).

O ***Oncidium glossomystax*** Rchb.f., see *Psygmorchis glossomystax*.

C ***Oncidium graminifolium*** Lindl., Sert. Orch. sub.t. 48. 1841. As *O. brachyandrum*. AV, BV, Cq, Gu, Ja, Pr, Qc, SR, Za. 1500 to 3000 m. T, humid, pine-oak forest. In A & C was confused with the Mexican epiphyte *O. brachyandrum*.

C ***Oncidium hagsaterianum*** R. Jiménez & Soto Arenas, Orquídea (Mexico) 13: 159. 1993. As *O. wentworthianum* var. *tenue* Lindl. AV, Iz, Pe, Qc, Sa, Za. 0 to 1000 m. E, warm, humid forest. Type of *O. tenue* Lindl. is actually *O. pergameneum*, making a new description necessary.

O ***Oncidium johannis*** Schltr., see *O. endocharis*.

C ***Oncidium laeve*** (Lindl.) Beer, Prak. Stud. Orch. 288. 1854. *Odontoglossum laeve*. Gu, Es, Ju, SM. 1400 to 1800 m. E, humid, oak forest.

Oncidium leucochilum Bateman ex Lindl., BV, Cm, Cq, Es, Gu, Hu, Pr, Qc, SM, SR, Za. 1600 to 2000 m. E, dry to humid, deciduous forest.

C ***Oncidium lindenii*** Brongn., Hort. Univ. 3: 372. 1842. As *O. nanum*. Pe. 200 to 300 m. E, low, humid scrub forest, most frequently found close to archeological sites. The

striking deep red lip is distinctive. Vegetatively very similar to *O. luridum*. Pe, Yaxhá, 280 m, July 1992, *Dix 7920* (UVAL).

* ***Oncidium lindleyii*** (Galeotti ex Lindl.) R. Jiménez & Soto Arenas, Orquídea (Mexico) 12: 306. 1992. Specimens from Guatemala, collected by Lehmann, are in Geneva. Resembles *O. maculatum*. Three-lobed, hastate lip and spotted pseudobulbs. Guatemala, col. Klaboch, 1877 (W).

Oncidium luridum Lindl., AV, Iz, Pe, Za. 0 to 1400 m. E, warm, humid forest.

Oncidium maculatum (Lindl.) Lindl., AV, BV, Cm, Cq, Gu, Ja, Pr, Za. 900 to 1500 m. E, dry, oak forest.

Oncidium microchilum Bateman ex Lindl., Cq, Hu. 1800 to 2000 m. L, arid regions.

O ***Oncidium nanum*** Lindl., an excluded species. See *O. lindenii*.

Oncidium ochmatochilum Rchb.f., Iz, Sa, Su. 1200 to 1600 m. E, humid forest, often on volcano slopes.

C ***Oncidium oerstedii*** Rchb.f., Bonplandia 2: 91. 1854. As *O. carthagenense*. AV, Cq, Es, Gu, Iz, Ja, Pe, Pr, Re, SR, Za. 0 to 1000 m. E, warm, humid forest. Has many flowers, tepals white with pink, lip has a yellow base and bifurcate mid-lobe, prominent quadrate wings on column. Pe, between Yaxhá and Nakúm, July 1992, *Dix 8010* (UVAL).

O ***Oncidium oblongatum*** Lindl., an excluded species, see *O. fasciculatum*.

Oncidium oliganthum (Rchb.f.) L. O. Williams, AV, BV, Za. 1400 to 2000 m. E, L, humid forest.

Oncidium ornithorhynchum HBK, AV, Gu(?), Ja, Ju, Qc, Sa, SR, Su. 800 to 1500 m. E, humid, broadleaf forest.

Oncidium pergameneum Lindl., AV, BV, Es, Gu, Sa. 1600 to 2000 m. E, semi-humid, oak or mixed pine-oak forest.

O ***Oncidium pusillum*** (L.) Rchb.f., see *Psygmorchis pusilla*.

O ***Oncidium reflexum*** Lindl., see *O. suttonii* Bateman ex Lindl.

* ***Oncidium sawyeri*** L. O. Williams, Ceiba 2 (Orch. Mex.): 320. 1951. Za. 1000 m. E, warm, oak forest. Jiménez (1992) has suggested this is a synonym of *O. maculatum*; however, we believe it is sufficiently distinct. Since the type is from San Luis Potosí, the Guatemalan material may represent a distinct species. Prob. Za, col. W. del Pinal, flowered in cult., 28 Feb. 1991, *Dix 7393* (UVAL).

Oncidium sphacelatum Lindl., AV, Iz, Pe, SR. 100 to 1200 m. E, dry to humid, warm forest.

Oncidium splendidum A. Rich. ex Duch., Cq, Gu. 200 to 900 m. L, very dry forest.

C ***Oncidium stenoglossum*** (Schltr.) Dressler & N. H. Williams, Orquídea (Mexico) 4: 338. 1975. *Odontoglossum stenoglossum*. AV, Cq, SM. 1400 to 1800 m. E, very humid forest.

Oncidium suttonii Bateman ex Lindl., AV, Es, Sa, Su. 100 to 1400 m. E, warm humid forest. The specimens cited as *O. reflexum* Lindl. by A & C represent this species. (See excluded species.)

Oncidium tenuipes Kraenzl., AV. 1300 m E, humid forest. Not known to us. Concept needs clarification, apparently known only from the type specimen. The species described as *O. fasciculatum* may represent this taxon, in which case *O. tenuipes* will be the correct name.

O ***Oncidium titania*** Schltr., see *Psygmorchis pumilio*.

Oncidium wentworthianum Bateman ex Lindl., AV, SR, Za. 1000 to 1500 m. E, humid forest.

O ***Oncidium wentworthianum* var. *tenue*** Lindl., see *O. hagsaterianum*.

Ornithocephalus bicornis Lindl., AV, Iz, Su. 0 to 1100 m. E, tropical, dry to humid forest.

Ornithocephalus inflexus Lindl., AV, Iz, Ju, Pe, Pr. 0 to 1100 m. E, humid forest. Pe, Aguada Maya, 27 June 1992, *Dix 7929* (UVAL).

Ornithocephalus iridifolius Rchb.f., BV. 800 to 1200 m. E, dry to humid forest. BV, road to Finca San Vicente, BV, Sierra de las Minas, 1200 m, 1–4 Aug. 1971, *F. Hamer A43* (SEL 047743).

* ***Ornithocephalus obergiae*** Soto Arenas, Orquídea (Mexico) 12: 194. 1992. AV. E, humid, tropical evergreen forest. AV, Sierra de Chamá, col. Archila, 24 May 1995, *Dix 7907* (UVAL). Distinguished by very small size, greenish yellow flowers with simple lip.

Ornithocephalus tripterus Schltr., AV, Re, Sa, Su. 0 to 1200 m. E, humid forest.

C ***Osmoglossum convallarioides*** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 148. 1923. *Odontoglossum convallarioides*. Cm, Gu, Ju, Sa, SM, SR. 1500 to 2700 m. E, seasonally dry to humid forest.

C ***Osmoglossum egertonii*** (Lindl.) Schltr., Orchis 10: 166. 1916. *Odontoglossum egertonii*. AV, BV, Gu, Pr, Qc, SM, Su. 1500 to 2600 m. E, humid forest.

C ***Osmoglossum pulchellum*** (Bateman ex Lindl.) Schltr., Orchis 10: 164. 1916. *Odontoglossum pulchellum*. AV, BV, Cm, Gu?, Hu, Ja, Pr, Qc, Qz, So, SR, To, Za. 1500 to 2600 m. E, humid forest, especially oak.

* ***Pachyphyllum hispidulum*** (Rchb.f.) Garay & Dunst., Venez. Orch. 3: 236. 1965. Ja. 2600 m. E, cloud forest, thick moss of uppermost oak branches, mixed oak, *Abies* and pine association. Ja, near Miramundo, 2600 m, 4 July 1993, col. M. W. & R. Dix, *Dix 7060* (UVAL).

Palumbina candida (Lindl.) Rchb.f., Qz, Sa, SM, Su. 1600 to 2200 m. E, very humid, cool, cloud forest.

C ***Pelexia adnata*** (Sw.) Poit. ex L. C. Richard, Mem. Mus. Par. 4: 59. 1818. *Spiranthes adnata*. Pe. 100 to 1000 m. T, very humid, warm forest, in rocky sunny areas.

* ***Pelexia congesta*** Ames & C. Schweinf., Sched. Orch. 10: 5. 1930. AV. 600 m. E, evergreen, humid forest. Short, congested petioles. AV, Finca Sachichaj, 11 Feb. 1990, *Dix 7095* (UVAL).

C ***Pelexia funckiana*** (A. Rich. & Galeotti) Schltr., Repert. Spec. Nov. Regni Veg. Beih. 15: 197. 1918. *Spiranthes funckiana*. AV, BV, Qz, Su. 300 to 1500 m. T, very humid forest. AV, Quixal, 1400 m, 6 Apr. 1980, *M. A. Dix 8011* (UVAL).

C ***Pelexia gutturosa*** (Rchb.f.) Garay, Bot. Mus. Leafl. 28: 344. 1982. *Spiranthes gutturosa*. AV. 600 to 1400 m. T, very humid forest. Long lanceolate leaves and large flowers with prominent nectary. A & C listed this as an excluded species.

* ***Pelexia laxa*** (Poepp. & Endl.) Lindl., Gen. Sp. Orch. Pl. 482. 1840. AV. 600 to 900 m. T, very humid forest. AV, Finca Sta. Isabel, Río Sacté, Sachichaj, 600 m, Salazar, Soto & Dix as *Salazar 6739* (UVAL).

C ***Pelexia olivacea*** Rolfe, Kew. Bull. 200. 1891. *Spiranthes funckiana* var. *olivacea*. AV, Es, Pe, To. 200 to 1500 m. T, humid forest.

* ***Pelexia richardiana*** (Schltr.) Garay, Bot. Mus. Leafl. 28: 345. 1980. AV. 800 m. E, dense, humid, broadleaf, evergreen forest. AV, Finca Santa Isabel, Sachichaj, 800 m, Feb. 1990. Col. Salazar et al. s.n. (AMO).

C ***Pelexia schaffneri*** (Rchb.f.) Ames, in Donnell-Smith, Enum. Pl. Guat. 7: 50. 1905. *Spiranthes schaffneri.* Gu, Sa, So, SR. 2200 to 2800 m. T, humid or open oak-pine forest, in deep humus.

O ***Phragmipedium caudatum*** (Lindl.) Rolfe, see *P. humboldtii.*

C ***Phragmipedium humboldtii*** (Warsz. ex Rchb.f.) J. T. Atwood, Selbyana 19: 247. 1998. *P. caudatum.* AV, BV. 600 to 1600 m. T, E, very humid, dense forest. Purchased on the Cobán road, in flower 22 June 1993, P. P. & A. Torres, *Dix 7058* (UVAL). The cited specimen is the autogamous form. Castaño, Hágsater, and Aguirre (1984) used *P. exstaminodium,* based on the autogamous form, for all Mexican material. In Guatemala, both autogamous and allogamous plants can be found. Further south, only allogamous plants have been observed. We believe that the autogamous form may be a subspecies and suggest a thorough study of the two forms and their distribution would resolve the question as to whether there are one or two taxa in Guatemala.

O ***Physosiphon minor*** Rendle, see *Pleurothallis minor.*

O ***Physosiphon tubatus*** (Lodd.) Rchb.f., see *Pleurothallis tubata.*

C ***Platanthera limosa*** Lindl., Ann. Nat. Hist. 4: 381. 1840. *Habenaria limosa.* Cm, Hu, Qz, Sa, To. 2000 to 3700 m. T, open, mossy, high-elevation bogs and forest.

* ***Platystele caudatisepala*** (C. Schweinf.) Garay, Orquideología 9: 119. 1974. AV. 300 to 1000 m. E, rain forest. AV, Sachicháj, col. Archila, Oct. 1990, *Luer 14854* (MO).

C ***Platystele compacta*** (Ames) Ames, Proc. Biol. Soc. Wash. 35: 85. 1922. *Pleurothallis compacta.* AV. 300 to 1400 m. E, very humid forest.

C ***Platystele jungermannioides*** (Schltr.) Garay, Orquideología 9: 120. 1974. As *Pleurothallis ovalifolia.* AV, Za. 700 to 1200 m. E, very humid forest. Holotype, Pansamalá, AV, *Tuerckheim 698* (?).

O ***Platystele lancilabris*** (Rchb.f.) Schltr., see *Platystele oxyglossa.*

* ***Platystele minimiflora*** (Schltr.) Garay, Orquideología 9: 120. 1974. AV, Es, Za. 200 to 1300 m. E, very humid forest. AV, cultivated by O. Mittelstaedt, Cobán, 13 Feb. 1990, *Luer 14611* (MO).

C ***Platystele ovatilabia*** (Ames & C. Schweinf.) Garay, Orquideología 9: 120. 1974. *Pleurothallis ovatilabia.* AV. 800 to 1000 m. E, warm, humid forest. Relatively large flowers that open simultaneously. Guatemala, without locality, col. Morgan & Morgan, flowered in cult., 28 May 1978, *Luer 2910* (SEL).

C ***Platystele oxyglossa*** (Schltr.) Garay, Orquideología 9: 120. 1974. As *Pleurothallis lancilabris* and *Pleurothallis lancilabris* var. *oxyglossa.* AV, BV, Iz, Pe, Pr, Za. 1000 to 1400 m. E, warm, humid forest. *Platystele lancilabris* is endemic to Costa Rica (Luer, 1990).

C ***Platystele pedicellaris*** (Schltr.) Garay, Orquideología 9: 120. 1974. *Pleurothallis pedicellaris.* AV. 1000 to 1400 m. E, warm, humid forest. AV, Senahú 1100 m, Feb. 1980, *Luer, Dix & Dix 5852* (SEL).

C ***Platystele repens*** (Ames) Garay, Orquideología 9: 120. 1974. *Pleurothallis repens.* AV, Pe. 0 to 800 m. E, warm, humid forest.

C ***Platystele stenostachya*** (Rchb.f.) Garay, Caldasia 8: 520. 1962. *Pleurothallis*

stenostachya. AV, Iz, Pe, Re, Za. 0 to 1300 m. E, warm, humid forest.

* ***Platystele taylorii*** Luer, Selbyana 3: 30. 1976. AV. 300 to 600 m. T, warm, humid forest. AV, col. Cubilguitz and L. Lachuá by Archila family, 1995, photo (UVAL).

C ***Platythelys maculata*** (Hook.) Garay, Bradea 2: 197. 1977. *Erythrodes maculata*. AV, Iz, Pe. 500 to 1000 m. T, warm, humid forest. Very small (10 cm or less), lanceolate leaf with white spots.

C ***Platythelys querceticola*** (Lindl.) Garay, Bradea 2: 197. 1977. *Erythrodes querceticola*. AV, BV, Cm, Hu, Iz, Qz, Za. 0 to 2400 m. T, humid forest in humus.

C ***Platythelys vaginata*** (Hook.) Garay, Bradea 2: 198. 1977. *Erythrodes querceticola* in part. AV, BV, Cm, Hu, Iz, Pe, Qz, Re, Su. 800 to 1700 m. T, deep humus in barrancas and between rocks in dense forest, often pine or pine-oak association. Large plants, 50 cm or more, ovate unmarked leaves.

C ***Platythelys venustula*** (Ames) Garay, Bradea 2: 198. 1977. *Erythrodes querceticola* var. *venustula*. AV, Iz. 100 to 500 m. E, humid, warm forest. Floral bracts leaflike, plant very small.

* ***Plectrophora alata*** (Rolfe) Garay, Bot. Mus. Leafl. 21: 261. 1967. BV, Sa, Su. 800 to 1600 m. E, shade trees and fruit trees. Sa, El Astillero, San Miguel Dueñas, 1470 m, May 1987, *Dix 6791* (UVAL).

Pleurothallis abbreviata Schltr., AV. 1600 m. E, broadleaf, humid forest. Racemose inflorescence.

O ***Pleurothallis abjecta*** Ames, see *P. barbulata*.

* ***Pleurothallis acicularis*** Ames & C. Schweinf., Sched. Orch. 10: 21. 1930. Recently known as *P. dixiorum* Luer. AV, Za. 900 to 1200 m. E, warm, humid, broadleaf forest. Road to Sebol, 975 m, 17 Sep. 1977, *Dix 521A* (UVAL) and *Luer 14624* (MO).

C ***Pleurothallis alata*** A. Rich. & Galeotti, Ann. Sci. Nat. Ser. 3, 3: 17. 1845. *P. hastata*. AV. 600 to 1200 m. E, very humid, warm forest.

O ***Pleurothallis amesiana*** L. O. Williams, see *Restrepia trichoglossa*.

C ***Pleurothallis angustifolia*** Lindl., Bot. Reg. sub.t. 1797. As *P. carioi*. Pe, Su. 0 to 1000 m. E, warm, lowland forest. Catling and Catling (1988) have demonstrated that these are identical.

Pleurothallis angustisepala Ames & Correll, AV, Hu, SM. 300 to 1200 m. E, warm, humid forest. Hu, Yolnabáj, Barillas, 1150 m, col. Ordoñez s.n., Apr. 1997, *Dix 8213* (UVAL).

O ***Pleurothallis arietina*** Ames, see *P. crocodiliceps*.

C ***Pleurothallis barbulata*** Lindl., Folia Orch. Pleuro. 40. 1859. *P. abjecta*. AV, Iz. 0 to 1100 m. E, warm, humid, broadleaf forest. Fasciculate inflorescence.

O ***Pleurothallis blaisdellii*** S. Watson, see *Trichosalpinx blaisdellii*.

Pleurothallis brighamii S. Watson, AV, Iz, Pe, Re, Su, Za. 0 to 1200 m. E, humid, warm forest.

O ***Pleurothallis broadwayi*** Ames, see *Trichosalpinx cedralensis* and *T. dura*.

Pleurothallis cardiothallis Rchb.f., AV, BV, Cq, Iz, Pr, Qz, Za. 1200 to 2000 m. E, T, very humid, evergreen forest.

O ***Pleurothallis carioi*** Schltr., see *P. angustifolia*.

* ***Pleurothallis carnosilabia*** Heller & Hawkes, Phytologia 14: 9. 1966. AV. 500

to 700 m. Humid, lowland tropical forest. *Behar s.n.* (MO).

O ***Pleurothallis ciliaris*** (Lindl.) L. O. Williams, see *Trichosalpinx ciliaris*.

Pleurothallis circumplexa Lindl., AV, Es, Gu, Ja, Ju, Pr, Qz, SR, Za. 1500 to 2400 m. E, dry to humid forest.

Pleurothallis cobanensis Schltr., AV, Iz. 800 to 1200 m. E, T, humid forest.

Pleurothallis comayaguensis Ames, Pe. 0 to 500 m. E, broadleaf, warm forest. Very small, reptant plant with purple flowers.

O ***Pleurothallis compacta*** (Ames) Ames & C. Schweinf., see *Platystele compacta*.

* ***Pleurothallis convallaria*** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 185. 1923. Iz. E, very humid, lowland tropical forest. Iz, 18 Nov. 1993, *Dix 7353* (UVAL).

Pleurothallis corniculata (Sw.) Lindl., Bot. Reg. 28: Misc. 83. 1842. Iz. 0 to 750 m. E, humid forest.

C ***Pleurothallis correllii*** Luer, Selbyana 3: 88. 1978. *P. pansamalae* var. *trianguilabia*. AV, BV, Es, Iz, Ju, Pr, Qz, Su, Za. 1000 to 2400 m. E, humid forest. Flowers yellow, leaves broad. Type from Qz, Volcán Zunil; Su, Volcán Atitlán, southern slopes, 1600 m, 19 May 1979, *Dix 7467* (UVAL).

* ***Pleurothallis crocodiliceps*** Rchb.f., Bonplandia 3: 72. 1855. *P. arietina*, SM, Su. 1500 m to 2000 m. E, humid, broadleaf forest. Su, southern slopes, Volcán Atitlán, 1500 m, 21 Apr. 1979, *Dix 4140* (UVAL); SM, between San Rafael Pie de la Cuesta and Palo Gordo, 11 Dec. 1963, *L. O. Williams 25671* (EAP).

O ***Pleurothallis crucilabia*** Ames & Correll, see *Trichosalpinx crucilabia*.

P ***Pleurothallis dixiorum*** Luer & Behar, Lindleyana 6: 97. 1991. See *P. acicularis*.

Pleurothallis dolichopus Schltr., AV, BV, Cm, Cq, Gu, Hu, Ju, Pr, Qz, SM, Su, Za. 1200 to 2400 m. E, humid forest.

* ***Pleurothallis endotrachys*** Rchb.f., Linnaea 41: 95. 1876. AV, BV, So, Su. 1200 to 1600 m. E, mid-elevation, humid forest, usually broadleaf. Su, southern slopes Volcán Atitlán, 1600 m, *Dix 4133* (UVAL).

C ***Pleurothallis erinacea*** Rchb.f., Bonplandia 3: 72. 1855. *P. muricata* Schltr. BV, Pr, Qc, Za. 1000 to 1500 m. E, dry, oak forest.

Pleurothallis fuegii Rchb.f., 1800 to 2700 m. AV, BV, Cm, Cq, Es, Gu, Ja, Ju, Pr, Qz, Sa, Su, SM, Za. E, dense, humid forest.

O ***Pleurothallis gacayana*** Schltr., see *P. pacayana*.

O ***Pleurothallis ghiesbreghtiana*** A. Rich & Galeotti, see *P. racemiflora*.

O ***Pleurothallis ghiesbreghtiana* var. *cleistogama*** L. O. Williams, see *P. nicaraguensis*.

Pleurothallis glandulosa Ames, AV, Su. 300 to 1200 m. E, warm humid forest. Narrow leaves, yellow-orange flowers.

O ***Pleurothallis grobyi*** Bateman ex Lindl., see *P. marginata*, and *P. microphylla* A. Rich. & Galeotti.

O ***Pleurothallis hastata*** Ames, see *P. alata*.

* ***Pleurothallis herrerae*** Luer & Behar, Lindleyana 6: 100–102. 1991. Qz. 2100 m. T, wet pine-oak forest. Closely related to *P. johnsonii*. Segregated by some authors into the genus *Brenesia*. Qz, Zunil, *Dix 6522* sub Herrera (isotype, UVAL).

O ***Pleurothallis hirsuta*** Ames, see *P. villosa*.

Pleurothallis hondurensis Ames, AV, Iz, Pe, Za. 0 to 1100 m. E, humid forest. Hangs vertically on trunks.

Pleurothallis immersa Lindl. & Rchb.f., AV, BV, Hu, Ju, Su, Za. 800 to 1500 m. E, humid forest.

C ***Pleurothallis jalapensis*** (Kraenzl.) Garay, Bot. Mus. Leafl. 30: 58. 1985. *Masdevallia jalapensis*. Ja, Qc, Qz, To. 1500 to 1800 m. E, T, very humid, cool, oak forest. Qc, near Nebaj, 1700 m, 28 Aug. 1976, *Dix 517* (UVAL); To, Aug. 1987, *Julio Toledo s.n.* (UVAL).

Pleurothallis johnsonii Ames, BV, Cm, Pr, SM, Za. 1000 to 2400 m. T, humid oak-pine forest with deep humus. (See note concerning *P. herrerae*.)

* ***Pleurothallis lanceola*** (Sw.) Spreng., Syst. Veg. ed. 16, 3: 731. 1826. AV. 200 m. E, warm, humid forest. Confused with *P. glandulosa*, but has broader leaves and deep orange flowers. AV, specimen presented in Salamá Orchid Show, 19 Sep. 1993, col. Archila, representative material *Dix 7077* (UVAL).

O ***Pleurothallis lancilabris*** (Rchb.f.) Schltr., see *Platystele oxyglossa*.

O ***Pleurothallis lancilabris* var. *oxyglossa*** (Rchb.f.) Schltr., see *Platystele oxyglossa*.

Pleurothallis leucantha Schltr., AV, BV, Su, Za. 1100 to 1800 m. E, humid forest. Has long, very narrow leaves and cream flowers; plant much smaller than *P. pansamalae*. Su, Finca Panamá, Santa Bárbara, 1500 m, 14 Apr. 1979, *Dix 79-35* (UVAL).

Pleurothallis lewisae Ames, AV, Iz, Pe. 0 to 800 m. E, warm, humid forest.

C ***Pleurothallis marginata*** Lindl., Bot. Reg. 24: Misc. 42. 1838. As *P. grobyi* in part. AV, BV, Cm, Es, Iz, Pe, Sa, SR, Za. 100 to 1500 m. E, L, humid forest. Differs from *P. grobyi* in having linear petals with obtuse callose apex, instead of lanceolate acute petals (see Catling & Catling, 1988). Probably most specimens cited as *P. grobyi* represent this species.

Pleurothallis matudana C. Schweinf., Cq, Es, Gu, Ja, Ju, Pr, SM, Za. 1900 to 2500 m. E, T, very humid, cool, cloud forest. Oak-pine or broadleaf forest.

C ***Pleurothallis microphylla*** A. Rich. & Galeotti, Ann. Sci. Nat. Ser. 3, 3: 17. 1845. As *P. grobyi* in part. AV, Iz, Pe. 200 to 800 m. E, warm, humid forest. Differs from *P. grobyi* in smaller rounded leaves and much longer, simultaneously flowering raceme with yellow flowers. Iz, Bocas del Polochic, 24 July 1997, *Dix 8870* (UVAL).

C ***Pleurothallis minor*** (Rendle) L. O. Williams, Ceiba 1: 186. 1950. *Physosiphon minor*. Cm, Hu, Sa. 2000 to 2300 m. E, cool uplands.

Pleurothallis minutalis Lindl., Gu, Hu, Sa. 1900 to 2400 m. E, temperate humid forest.

O ***Pleurothallis muricata*** Schltr., see *Pl. erinacea* Rchb.f.

C ***Pleurothallis nicaraguensis*** Rchb.f., Ann. Bot. Syst. Nat. 6: 171. 1861. *P. ghiesbreghtiana* var. *cleistogama*. AV, BV, Pr, Za. 1000 to 1500 m. E, oak-pine forest.

O ***Pleurothallis ophiocephala*** Lindl., see *Restrepiella ophiocephala*.

* ***Pleurothallis ornata*** Rchb.f., Gartenz. 1: 106. 1882. As *P. schiedei*. AV, Cm, Gu, Sa. 1600 to 2800 m. E, mid-elevation cloud forest.

O ***Pleurothallis ovatilabia*** Ames & C. Schweinf., see *Platystele ovatilabia*.

C ***Pleurothallis pacayana*** Schltr., as *P. gacayana*. Es, Gu. 1000 to 1500 m. E, oak forest.

Pleurothallis pachyglossa Lindl., AV, BV, Su, Za. 1000 to 2400 m. E, T, very humid, broadleaf forest.

Pleurothallis pansamalae Schltr., AV, BV, Cm, Gu, Iz, Su. 1000 to 1800 m. E, T, very humid forest.

O ***Pleurothallis pansamalae* var. *trianguilabia*** Correll, see *P. correllii*.

O ***Pleurothallis pedicellaris*** Schltr., see *Platystele pedicellaris*.

P ***Pleurothallis periodica*** Ames, see *P. simmleriana*.

* ***Pleurothallis pisinna*** Luer, Lindleyana 6: 105–106. 1991. AV. 300 m. E, warm, lowland forest. AV, col. Ibañez, *Luer 14860* (MO).

Pleurothallis platystylis Schltr., AV, BV, Ja, Qc, Za. 1300 to 2300 m. E, T, oak-pine forest or broadleaf humid forest.

O ***Pleurothallis pringlei*** Schltr., see *Trichosalpinx pringlei*.

C ***Pleurothallis pubescens*** Lindl., in Hook., Comp. Bot. Mag. 2: 355. 1836. As *P. vittata*. Iz. 800 to 1300 m. E, moist forests. Lip has minutely serrate lateral lobes, petals are unguiculate with denticulate margins. Related to *P. hondurensis*.

C ***Pleurothallis racemiflora*** Lindl. ex Lodd., Bot. Cab. 10: t. 949. 1824. *P. ghiesbreghtiana*. AV, BV, Es, Gu, Hu, Iz, Pr, Re, Sa, SR, Su, Za. 700 to 1800 m. E, L, humid to dry forest.

O ***Pleurothallis repens*** Ames, see *Platystele repens* (Ames) Garay.

Pleurothallis samacensis Ames, AV. 800 to 1450 m. E, broadleaf, very humid forest.

* ***Pleurothallis sanchoi*** Ames, Sched. Orch. 4: 26. 1923. AV, Iz. 600 to 1100 m. E, warm, humid, broadleaf forest. AV, Cobán Orchid Show, Dec. 1988, *Dix 6266* (UVAL).

O ***Pleurothallis schiedei*** Rchb.f., see *P. ornata* Rchb.f.

Pleurothallis segoviensis Rchb.f., AV, BV, Cq, Gu, Hu, Ja, Ju, Pr, Qz, Za. 1300 to 1900 m. E, very humid forest.

Pleurothallis segregatifolia Ames & C. Schweinf., BV, Cm. 1200 to 1500 m. E, very humid forest, on small twigs.

Pleurothallis sertularioides (Sw.) Spreng., AV, Iz, Pe, Za. 0 to 1200 m. E, warm, humid forest.

Pleurothallis setosa C. Schweinf., AV, Iz. 300 to 800 m. E, warm, humid forest.

* ***Pleurothallis simmleriana*** Rendle, J. Bot. 38: 274. 1900. AV, Iz, Qc, Za. 800 to 1200 m. E, warm, humid forest. AV, road to Sebol, 900 m, 17 Sep. 1977, *Dix 4175* (UVAL). Has been known as *P. periodica* Ames.

O ***Pleurothallis stenostachya*** Rchb.f., see *Platystele stenostachya*.

* ***Pleurothallis testaeifolia*** (Sw.) Lindl., Ann. Mag. Nat. Hist. 1: 328. 1858. 800 to 1400 m. AV, Iz, Za. E, very humid forest. Cultivated Mittelstaedt, *Dix 6674* (UVAL); AV, Senahú, July 1987, *Dix. s.n.* (UVAL).

Pleurothallis tikalensis Correll & C. Schweinf., Pe. 200 to 400 m. E, L, broadleaf, humid, lowland forest.

O ***Pleurothallis triangulipetala*** Ames & Correll, see *Trichosalpinx triangulipetala* (Ames & Correll) Luer.

Pleurothallis tribuloides (Sw.) Lindl., AV, Es, Iz, Za. 200 to 1100 m. E, very humid forest.

C ***Pleurothallis tubata*** (Lodd.) Steud., Nom. ed. 2: 356. 1854. *Physosiphon tubatus*. AV,

BV, Cm, Cq, Es, Gu, Hu, Ju, Qc, Re, SM, So, SR, Su, Za. 1000 to 3000 m. E, L, dry to humid forest.

Pleurothallis tuerckheimii Schltr., AV, BV, Cm, Cq, Hu, Iz, Ja, Pr, Su, Za. 1000 to 2700 m. E, T, very humid, broadleaf forest.

* ***Pleurothallis verecunda*** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 17: 24. 1922. Iz. 50 m. E, warm, humid swamps. Iz, Bocas del Polochic, July 1997, *Dix 8732* (UVAL).

C ***Pleurothallis villosa*** Knowles & Westc., Floral Cabinet 2: 78. 1838. *P. hirsuta*. AV, BV, Cq, Gu, Hu, Ja, Ju, Pr, Qz, Za. 800 to 2500 m. E, very humid, warm forest.

Pleurothallis violacea A. Rich. & Galeotti, AV, SR. 600 to 1100 m. E, warm, humid forest.

O ***Pleurothallis vittata*** Lindl., see *P. pubescens*.

O ***Pleurothallis xanthophthalma*** (Rchb.f.) L. O. Williams, see *Restrepia muscifera*.

Pleurothallis yucatanensis Ames & C. Schweinf., Iz, Pe. 0 to 400 m. E, humid, low-elevation forest.

O ***Polystachya cerea*** Lindl., see *P. foliosa* (Hook.) Rchb.f.

Polystachya clavata Lindl., Iz, Pe. 0 to 1000 m. E, dry forest, especially oak and pine.

C ***Polystachya concreta*** (Jacq.) Garay & Sweet, Fl. Lesser Antilles 178. 1974. *P. luteola*. 0 to 400 m. E, low-elevation forest. Cited by A & C. No valid specimen seen from Guatemala.

C ***Polystachya foliosa*** (Hook.) Rchb.f., Walp. Ann. Bot. Syst. 6: 640. 1863. *P. cerea*. AV, BV, Cq, Es, Hu, Iz, Ju, Pr, Qz, Re, Za. 0 to 1750 m. E, L, humid to dry forest. According to Hágsater (pers. comm.), *P. cerea* is synonymous. Christiansen (in litt.) suggests that *P. nana* should be used for this taxon.

Polystachya lineata Rchb.f., Iz, Pe. 0 to 1100 m. E, dense, humid forest. Striped petals and sepals; high, basal callus.

O ***Polystachya luteola*** (Sw.) Hook., see *P. concreta*.

Polystachya masayensis Rchb.f., AV, Iz, Za. 0 to 1200 m. E, L, dry to humid forest. Ovaries hispidous.

Ponera glomerata Correll, Cm, Gu, Qz, Sa. 1800 to 2700 m. E, L oak-pine forest.

* ***Ponera juncifolia*** Lindl., Gen. & Sp. Orch. Pl. 114. 1831. AV, Sa, Za. 2000 to 2300 m. E, upper tree branches in cloud forest. Za, above Río Hondo, 2300 m, 14 Apr. 1993, *Dix 7225* (UVAL). Archila (Cobán) found this species in mountains in AV, above R. Chixoy and in Sa, on Volcán Acatenango.

O ***Ponera macroglossa*** Rchb.f., see *P. striata*.

* ***Ponera pellita*** Rchb.f., Gard. Chron. n.s. 14: 8. 1880. Cm, Gu, Pr, Sa. 1500 to 2500 m. E, humid oak-pine/cypress forest. Gu, near San José Pinula, Feb. 1980, *Dix 4916* (UVAL); Cm, Acatenango, 17 Apr. 1977, *Dix 77-29* (UVAL); Sa, Volcán Acatenango, 2450 m, 15 May 1989, *Véliz 89.390* (AGUAT). Illustrated by Oesterreich (1967).

Ponera striata (Sw.) Lindl., includes *P. macroglossa*. AV, BV, Cm, Cq, Iz, Ja, Ju, Pe, Pr, Qc, Qz, So, Su, Za. 0 to 3000 m. E, dry to humid, warm to cool forest.

Ponthieva ephippium Rchb.f., AV, SR 1500 to 2500 m. T, humid, shady soil, especially pine forest.

C ***Ponthieva formosa*** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 12. 1923. As *P. maculata*. Ja, Pr, Za. 1900 to 2375 m. E, at

base of trees, humid forest; pine, *Podocarpus*, oak, laurel. Za, Sierra de las Minas, 1950 m, *Dix 7247* (UVAL); Ja, Volcán Jumay, col. J. Ordóñez, in flower 25 July 1995, *Dix 7534* (UVAL).

O ***Ponthieva maculata*** Lindl., see *P. formosa* Schltr.

Ponthieva parvula Schltr., AV, Hu, Qc. 1000 to 1800 m. T, humid soil, among rocks. AV, open roadside, near Senahú, 3 Dec. 1984, *Dix 84-17* (UVAL).

Ponthieva pulchella Schltr., Hu, To. 3000 to 3700 m. T, cool, humid, rocky areas.

Ponthieva racemosa (Walter) C. Mohr, AV, BV, Cm, Cq, Es, Gu, Ja, Pe, Sa, SR. 300 to 2000 m. T, shady humid areas especially ravines in oak/conifer forest.

C ***Ponthieva schaffneri*** (Rchb.f.) E. W. Greenw., Orquídea (Mexico) 12: 55. 1990. *Cranichis schaffneri*. Hu, Ja. 1800 to 2700 m. T, pine-oak forest, in humus or on trunks.

Ponthieva triloba Schltr., AV, Cq, Gu, Hu, Qc. 1000 to 2000 m. T, woody humid slopes in deep humus. Type specimen, AV in rock fissures, Xucaneb, near Cobán, Dec. 1877, *Tuerckheim 14* (US); Gu, Piedra Parada, Sta. Catarina Pinula, 1850 m, 10 Nov. 1992, *M. A. Dix 7521* (UVAL).

* ***Ponthieva trilobata*** (L. O. Williams) L. O. Williams, Fieldiana (Bot.) 34: 115. 1972. Za. 1500 m. T, oak-pine forest. Originally described as *Cranichis trilobata*. Za, road to San Lorenzo, 1500 m, 10 Sep. 1994, M. Maldonado & M. W. Dix as *Dix 7521* (UVAL).

Ponthieva tuerckheimii Schltr., AV, BV, Hu, Pr. 1000 to 2500 m. T, dense, humid pine-oak forest.

Prescottia oligantha (Sw.) Lindl., AV, BV, Cq, Ja, Za. 600 to 1500 m. T, dense, humid forest. AV, bet. Coban and Finca Chimoché, 800 to 1500 m, 25 Feb. 1942, *Steyermark 44157* (F). Relatively small plant with leaves about 4 cm wide.

Prescottia stachyodes (Sw.) Lindl., AV, BV, Gu, Iz, Ju, Pr, Qz, Qc, Sa, SM, So, Su, Za. 750 to 3000 m. T, dense forest with deep humus. Leaves less than 10 cm wide.

Prescottia tubulosa (Lindl.) L. O. Williams, Hu, Ju, Qz. 1700 to 3000 m. T, shady areas in dense humid forest.

C ***Pseudogoodyera wrightii*** (Rchb.f.) Schltr., Beih. Bot. Centralbl. 37: 369. 1920. *Spiranthes pseudogoodyerioides*. Pe. 200 to 400 m. T, on rocks in shade.

Psilochilus macrophyllus (Lindl.) Ames, AV, BV, Hu, Iz, SM. 900 to 1600 m. T, humus in humid forest. There are probably several undescribed *Psilochilus* species in Guatemala.

C ***Psygmorchis glossomystax*** (Rchb.f.) Dodson & Dressler, Phytologia 24: 288. 1972. *Oncidium glossomystax*. AV. 1100 m E, warm, humid forest, on twigs.

C ***Psygmorchis pumilio*** (Rchb.f.) Dodson & Dressler, Phytologia 24: 288. 1972. *Oncidium titania*. AV, Es. 300 to 1000 m. E, small trees in plantations and open areas.

C ***Psygmorchis pusilla*** (L.) Dodson & Dressler, Phytologia 24: 288. 1972. *Oncidium pusillum*. AV, BV, Cm, Iz, Ju, Pe, Re. 200 to 1200 m. E, especially plantations and orchards on small trees and shrubs.

C ***Restrepia muscifera*** (Lindl.) Rchb.f. ex Lindl., Folia Orch. Restrepia 7. 1859. *Pleurothallis xanthophthalma*. AV, BV, Es, Gu, Hu, Iz, Ja, Pr, Qz, Sa, SR, Su, Za. 700 to 2300 m. E, mixed or broadleaf, humid to seasonally dry forest.

C ***Restrepia trichoglossa*** F. Lehm. ex Sander, Orchid Guide 215. 1901. *Pleurothallis*

amesiana. AV, Qz, SM, Su. 900 to 1800 m. E, warm humid forest. AV, Polochic Valley, col. Archila, *Dix 6265* (UVAL).

C ***Restrepiella ophiocephala*** (Lindl.) Garay & Dunst., Venez. Orch. 4: 266. 1966. *Pleurothallis ophiocephala*. AV, Cm, Es, Gu, Iz, Re, Sa, So, Su. 400 to 1500 m. E, oak & mixed broadleaf forest.

* ***Restrepiopsis ujarensis*** (Rchb.f.) Luer, Selbyana 2: 200. 1978. AV, Iz. 900 to 1140 m. E, dense, humid forest. AV, Senahú, 1140 m, Feb. 1980, *Luer & Dix 5963* (SEL).

C ***Rhyncholaelia digbyana*** (Benth.) Schltr., Beih. Bot. Centralbl. 36: 477. 1918. *Laelia digbyana*. Cq, Iz, Pe. 100 to 1600 m. E, L, warm, dry tropical forest.

C ***Rhyncholaelia glauca*** (Lindl.) Schltr., Beih. Bot. Centralbl. 36: 477. 1918. *Laelia glauca*. AV, BV, Cm, Cq, Gu, Ja, Ju, Pr, Za. 200 to 1700 m. E, L, dry, oak forest.

C ***Rhynchostele bictoniensis*** (Bateman) Soto Arenas & Salazar, Orquídea (Mexico) 13: 147. 1993. *Odontoglossum bictoniense*. AV, BV, Cm, Gu, Hu, Ja, Pr, Qz, Sa, SM, To, Za. 1500 to 3500 m. T, occasionally E, cypress and oak-pine forest.

C ***Rhynchostele cordata*** (Lindl.) Soto Arenas & Salazar, Orquídea (Mexico) 13: 148. 1993. *Odontoglossum cordatum*. AV, BV, Gu, Pr, Qc, So, Su, Za. 1800 to 2600 m. E, cloud forest.

C ***Rhynchostele maculata*** (La Llave & Lex.) Soto Arenas & Salazar, Orquídea (Mexico) 13: 150. 1993. *Odontoglossum maculatum*. SM. 2400 to 2900 m. E, cloud forest, oak-pine.

C ***Rhynchostele majalis*** (Rchb.f.) Soto Arenas & Salazar, Orquídea (Mexico) 13: 150. 1993. *Odontoglossum majale* AV(?), Cm, Pr, Qc, So. 2000 to 2600 m. E, relatively dry, oak forest.

C ***Rhynchostele pygmaea*** (Lindl.) Rchb.f., Bot. 2 cit. 10: 770. 1852. *Leochilus pygmaeus*. Cm, Es, Gu, Qz, Sa, SM, So, To. 2000 to 3500 m. E, cool, humid, oak forest.

C ***Rhynchostele rossii*** (Lindl.) Soto Arenas & Salazar, Orquídea (Mexico) 13: 151. 1993. *Odontoglossum rossii*. AV, Cm, Pr, Qz, Sa, To, Za. 2000 to 2700 m. E, cloud forest, especially on oak.

C ***Rhynchostele stellata*** (Lindl.) Soto Arenas & Salazar, Orquídea (Mexico) 13: 151. 1993. *Odontoglossum stellatum*. Cm, Es, Hu, Ja, Pr, Sa, So, Za. 2300 to 3000 m. E, oak cloud forest.

C ***Rhynchostele uroskinneri*** (Lindl.) Soto Arenas & Salazar, Orquídea (Mexico) 13: 151. 1993. *Odontoglossum uroskinneri*. SM, So. 1500 to 1800 m. L, oak-pine forest on cliff faces.

C ***Rossioglossum grande*** (Lindl.) Garay & G. C. Kenn., Orch. Dig. 40: 143. 1976. *Odontoglossum grande*. Cm, Es, Gu, Qz, Sa, SR, Su. 1600 to 2600 m. E, humid, oak forest.

C ***Rossioglossum williamsianum*** (Rchb.f.) Garay & G. C. Kenn., Orch. Dig. 40: 143. 1976. *Odontoglossum williamsianum*. AV, BV, SM. 1200 to 1800 m. E, very humid, dense, broadleaf forest.

C ***Sacoila lanceolata*** (Aubl.) Garay, Bot. Mus. Leafl. 28: 352. 1982. *Spiranthes orchioides*. AV, Gu, Iz, Ju, Pe, Qc, SR, Za. 500 to 1500 m. T, dry to humid, open fields, pine forest. Ju, Volán de Ipala, 1 May, 1976, *Dix 8948* (UVAL).

C ***Sarcoglottis acaulis*** (Sm.) Schltr., Repert. Spec. Nov. Regni Veg. Beih. 6: 53. 1919. *Spiranthes acaulis*. Cited by A & C as from AV, BV, Cq, Pe, Pr, Re, SR, Za. 200 to 1000 m. T, humid soils, open pine forest or dense woods. However, this is a South American species, also found in Trinidad in very dry *Acacia* forest. Probably the

material cited represents several species, such as *Sarcoglottis sceptrodes*, *S. assurgens*.

C ***Sarcoglottis assurgens*** (Rchb.f.) Correll, Lloydia 10: 209. 1947. *Spiranthes acaulis* var. *assurgens*. AV, Gu. 1500 to 1900 m. T, humid soils, pine forest. Gu, *Dix 709* (UVAL).

C ***Sarcoglottis cerina*** W. Baxt., Loud. Hort. Brit. Suppl. 3: 634. 1839. *Spiranthes cerina*. Cm, Es, Gu, Za. 1200 to 2000 m. T, pine/cypress forest. In deep humus.

C ***Sarcoglottis corymbosa*** (A. Rich & Galeotti) Garay, Bot. Mus. Leafl. 28: 354. 1982. *Spiranthes pauciflora*. BV, SR, Za. 1150 to 2100 m. T, open pine or oak-pine forest. Za, Volcán de Monos, Sierra de Las Minas, *Steyermark 42358* (F); BV, Matanzas, Km 142, road to Cobán, 1450 m, 2 Feb. 1983, *Sánchez 163* (AGUAT).

C ***Sarcoglottis rosulata*** (Lindl.) W. Baxt., Loud. Hort. Brit. Suppl. 3: 634. 1839. *Spiranthes rosulata*. AV, BV, Cm, Cq, Gu, Es, Hu, Pr, Qc, Sa, SR, Za. 1300 to 2300 m. T, mixed forest near streams. Exhibited in Guatemala City as from Cobán, AV, Feb. 1994, *Dix 7092* (UVAL).

* ***Sarcoglottis sceptrodes*** (Rchb.f.) Schltr., Beih. Bot. Centralbl. 37(2): 421. 1920. AV, Cm, Pe. 200 to 2000 m. T, open forest. Smells of coriander. Cm, *Peter Grinnell s.n.* (UVAL); AV, exhibited Guatemalan Orchid Society Show, col. Ibañez, Feb. 1994, *Dix 7093* (UVAL); Pe, Tikal, 22 July 1988, flowered Mar. 1994, *Dix 7372* (UVAL).

C ***Sarcoglottis schaffneri*** (Rchb.f.) Ames, in Donnell-Smith, Enum. Pl. Guat. 7: 50. 1905. *Spiranthes schaffneri*. Gu, Sa, So, SR, Za. 1300 to 3000 m. T, humid, dense forest and among rocks on grassy slopes. Za, San Lorenzo, 1740 m, 23 Mar. 1979, *Dix 6809* (UVAL).

* ***Scaphosepalum microdactylum*** Rolfe, Kew Bull. 335. 1883. *S. standleyi*. AV, Iz, Za. 400 to 1000 m. E, dense relatively dry, lowland forest. See *S. standleyi*.

Scaphosepalum standleyi Ames, AV, Iz. 600 to 1200 m. E, dense, mid-elevation, broadleaf forest. Luer (1988) synonymized *S. microdactylum* and this species, suggesting that a species complex was involved. We prefer to keep them separate. In Guatemala they are distinct. *S. microdactylum* has been found in hot, relatively dry lowlands and *S. standleyi* in more humid, cooler regions. We have had both populations in culture in Guatemala City for several years under identical conditions, and differences are maintained.

O ***Scaphyglottis amethystina*** (Rchb.f.) Schltr., see *S. stellata*.

Scaphyglottis behrii (Rchb.f.) Benth. & Hook., AV, Cq, Iz, Pe. Up to 350 m. E, dense or open, warm forest.

O ***Scaphyglottis confusa*** (Schltr.) Ames & Correll, see *S. minuta*.

Scaphyglottis crurigera (Bateman ex Lindl.) Ames & Correll, Cm, Gu, Ja, Ju, Pr, Qz, Sa, SR. 500 to 1900 m. E, humid forest.

O ***Scaphyglottis cuneata*** Schltr., see *S. prolifera*.

O ***Scaphyglottis cuneata* var. *major*** (C. Schweinf.) C. Schweinf., see *Scaphyglottis major*.

Scaphyglottis hondurensis (Ames) L. O. Williams, Za. 1000 to 1600 m. E, mixed, humid forest.

Scaphyglottis lindeniana (A. Rich. & Galeotti) L. O. Williams, AV, Iz, Qz, Su, Za. 600 to 1350 m. E, warm, humid forest.

O ***Scaphyglottis livida*** (Lindl.) Schltr., see *S. minuta*.

Scaphyglottis longicaulis S. Watson, Iz. 0 to 900 m. E, dense, humid forest.

C ***Scaphyglottis major*** Rchb.f., Linnaea 22: 856. 1850. *S. cuneata* var. *major*. AV, Iz, Pe. 0 to 700 m. E, humid, broadleaf forest.

Scaphyglottis micrantha (Lindl.) Ames & Correll, SR, Su. 1000 to 1300 m. E, dry forest.

C ***Scaphyglottis minuta*** (A. Rich. & Galeotti) Garay, Bot. Mus. Leafl. 23: 299. 1973. *S. confusa*, *S. livida*. AV, BV, Cq, Hu, Iz, Ju, Pe, Pr, Qc, Za. 1000 to 2100 m. E, dry or humid forest.

Scaphyglottis minutiflora Ames & Correll, Iz. 0 to 1000 m. E, humid, evergreen forest.

C ***Scaphyglottis prolifera*** (Lindl.) Cogn., Fl. Brasil 3: 15. 1898. *S. cuneata*. AV, BV, Iz, Pe. 0 to 1200 m. E, humid, broadleaf forest.

C ***Scaphyglottis stellata*** (Lodd.) Lindl., Bot. Reg. 1899: misc. 44. As *S. amethystina* (Rchb.f.) Schltr. 0 to 300 m. E, warm, lowland forest. Schlechter record cited in A & C; no other record known to us.

* ***Scaphyglottis tenella*** L. O. Williams, Ann. Missouri Bot. Gard. 28: 423. 1941. AV, Iz. 800 to 1000 m. E, humid forest. AV, road to Sebol, 16 Sep. 1977, *Dix 7294* (UVAL).

Scelochilus tuerckheimii Schltr., AV, BV, Qz, Su. 1000 to 1600 m. E, dense, humid forest.

C ***Schiedeella eriophora*** (Rob. & Greenm.) Schltr., Beih. Bot. Centralbl. 37: 380. 1920. *Spiranthes eriophora*. Gu, Pr, So, Za. 1800 to 3000 m. T, dry slopes and open conifer forest.

C ***Schiedeella hyemalis*** (A. Rich. & Galeotti) Burns-Bal., Orquídea (Mexico) 8: 39. 1981. *Spiranthes hyemalis*. Cm, Qz. 2400 to 3260 m. T, rarely E, conifer forest, in grass and on rocky slopes.

C ***Schiedeella llaveana*** (Lindl.) Schltr., Beih. Bot. Centralbl. 37: 378. 1920. *Spiranthes llaveana*. Gu, Pr, Qc, SR. 1800 to 3000 m. T, woody slopes with pine, mixed oak-pine or grassy meadows.

C ***Schiedeella parasitica*** (A. Rich. & Galeotti) Schltr., Beih. Bot. Centralbl. 37: 378. 1920. *Spiranthes parasitica*. Cm, Qz. 1700 to 3200 m. T, dry conifer, oak/conifer or cloud forest.

* ***Schiedeella schlechterana*** Szlach. & Sheviak, Rhodora 92: 11. 1990. To. 3200 m. T, overgrazed pasture in full sun. To, Empuxtet, 2 Apr. 1977, *D. N. Smith 559* (holotype, F).

C ***Schiedeella stolonifera*** (Ames & Correll) Burns-Bal., Orquídea (Mexico) 8: 40. 1981. *Spiranthes stolonifera*. Cm, Hu, Pr, To. 2500 to 3500 m. T, very humid, cool, conifer or cloud forest. Los Cuchumatanes and Sierra de Las Minas. Hu, Cerro Chemal, 3700 to 3800 m, 8 Aug. 1982, *Steyermark 50297* (F); Cm, Los Encuentros, 25 Sep. 1937, *Johnston 1012* (EAP).

C ***Schiedeella trilineata*** (Lindl.) Burns-Bal., Orquídea (Mexico) 8: 40. 1981. *Spiranthes trilineata* and *S. thelymitra*. BV, Cm, Es, Gu, Sa, Za. 1300 to 2500 m. T, full sun, grassland and open oak-pine forest, roadsides.

* ***Sigmatostalix costaricensis*** Rolfe, Kew Bull. 78: 1916. Qz, Su. 1300 m. E, shady mid-elevation forests. Differs from *S. guatemalensis* in column and lip shape and in red-brown lip markings. Qz, Zunil, 1300 m, 1993, col. Archila s.n., *Dix 7526* (UVAL).

Sigmatostalix guatemalensis Schltr., AV, Iz. 500 to 1200 m. E, humid forest. Yellow flower.

* ***Sobralia amabilis*** (Rchb.f.) L. O. Williams, Ann. Missouri Bot. Gard. 33: 30. 1946. Ju. 1300 to 1400 m. T, L, rocky cliffs in full sun. Ju, summit of Volcán Chingo, 28 Dec. 1991, *Dix 7500* (UVAL). Illustrated by Hamer (1981) as *S. lepida.*

Sobralia decora Bateman, AV, Cq, Iz, Ju, Pe, Pr, Za. 0 to 1750 m. L, E, shady forest to sunlit rock faces. Readily produces keikis, flowers often predominantly white to pink.

Sobralia fragrans Lindl., AV, Iz, Pe, Qc. 100 to 1200 m. E, warm, humid forest.

* ***Sobralia leucoxantha*** Rchb.f., Beitr. Orch. Centr. Am. 68. 1866. Iz. E, warm, very humid forest. Izabal, M. W. & W. Dix, 1 Nov. 1994, *Dix 7498* (UVAL), flowered in cult. Mar. 1995. Relatively small, white flower, 3-keeled yellow lip.

* ***Sobralia macra*** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 272. 1923. AV, BV. 800 to 1200 m. Bought by W. del Pinal growing with *Elleanthus hymenophorus* in AV, Coban, *Dix 6730* (UVAL).

Sobralia macrantha Lindl., AV, BV, Cm, Es, Gu, Hu, Pr, Qz, Sa, SR, Su, Za. 1000 to 3400 m. E, L, humid forest.

Sobralia mucronata Ames & C. Schweinf., AV, Iz. 200 to 700 m. E, humid, warm, evergreen forest. Iz, Montañas del Mico, Morales, 1–3 May 1998. *Dix & Maldonado 9203* (UVAL). Rare.

Sobralia xantholeuca Hort. ex B. S. Williams, AV, BV, Hu. 1300 to 1800 m. E, T, very humid or cloud forest. Oak-pine-liquidambar.

O ***Spiranthes acaulis*** (Sm.) Cogn., see *Sarglottis acaulis*.

O ***Spiranthes acaulis* var. *assurgens*** (Rchb.f.) Correll, see *Sarcoglottis assurgens*.

O ***Spiranthes adnata*** (Sw.) Benth. ex Fawc., see *Pelexia adnata*.

O ***Spiranthes amabilis*** Ames, see *Hapalorchis lineatus*.

O ***Spiranthes aurantiaca*** (La Llave & Lex.) Hemsl., see *Stenorrhynchus aurantiacum*.

O ***Spiranthes cerina*** Lindl., see *Sarcoglottis cerina*.

O ***Spiranthes cinnabarina*** (La Llave & Lex.) Hemsl., see *Dichromanthus cinnabarinus*.

O ***Spiranthes costaricensis*** Rchb.f., see *Beloglottis costaricensis* and *Beloglottis mexicana*.

O ***Spiranthes cranichoides*** (Griseb.) Cogn., see *Cyclopogon nigricans*.

O ***Spiranthes elata*** (Sw.) Rich., see *Cyclopogon elatus*.

O ***Spiranthes eriophora*** Rob. & Greenm., see *Schiedeella eriophora*.

O ***Spiranthes funckiana*** A. Rich & Galeotti, see *Pelexia funckiana*.

O ***Spiranthes funckiana* var. *olivacea*** (Rolfe) Ames & Correll, see *Pelexia olivacea*.

O ***Spiranthes guayanensis*** (Lindl.) Cogn., see *Brachystele guayanensis*.

O ***Spiranthes hemichrea*** Lindl., see *Aulosepalum hemichreum* and *A. pulchrum*.

O ***Spiranthes hyemalis*** A. Rich. & Galeotti, see *Schiedeella hyemalis*.

O ***Spiranthes llaveana*** Lindl., see *Schiedeella llaveana*.

O ***Spiranthes llaveana* var. *violacea*** (A. Rich. & Galeotti) Ames & Correll, see *Cyclopogon violaceus*.

O ***Spiranthes minutiflora*** A. Rich. & Galeotti, see *Galeottiella minutiflora* and *G. nutantiflora*.

* ***Spiranthes nebulorum*** Catling & V. R. Catling, Rhodora 90: 139, 140. 1988. As *S. vernalis* in part. AV, BV, Cm, Hu. 1500 to 3200 m. T, open grassy and rocky slopes. Differs from *S. graminea* in having ovate instead of oblong quadrate lip and much longer basal calli (1 mm or more long). BV, above Chilasco Falls, 1900 m, 11 July 1995, *W. Dix 7531* (UVAL).

Spiranthes obtecta C. Schweinf., Bot. Mus. Leafl. 4: 106. 1936, 37. Gu, Ja. 1600 to 2150 m. T, oak-pine-cypress forest.

O ***Spiranthes orchioides*** (Sw.) A. Rich., see *Sacoila lanceolata*.

O ***Spiranthes parasitica*** A. Rich & Galeotti, see *Schiedeella parasitica*.

O ***Spiranthes pauciflora*** A. Rich & Galeotti, see *Sarcoglottis corymbosa*.

O ***Spiranthes polyantha*** Rchb.f., see *Mesadenus polyanthus*.

O ***Spiranthes prasophylla*** Rchb.f., see *Cyclopogon prasophyllum*.

O ***Spiranthes prasophylla* var. *cleistogama*** Ames & Correll, see *Cyclopogon prasophylloides*.

O ***Spiranthes pseudogoodyerioides*** L. O. Williams, see *Pseudogoodyera wrightii*.

O ***Spiranthes pyramidalis*** Lindl., see *Aulosepalum pyramidale*.

O ***Spiranthes rosulata*** (Baxter) Lindl., see *Sarcoglottis rosulata*.

O ***Spiranthes rubrocalosa*** Rob. & Greenm., see *Microthelys rubrocalosa*.

O ***Spiranthes sarcoglossa*** A. Rich & Galeotti, see *Galeottiella sarcoglossa*.

O ***Spiranthes schaffneri*** Rchb.f., see *Sarcoglottis schaffneri*.

O ***Spiranthes seminuda*** Schltr., see *Kionophyton seminudum*.

O ***Spiranthes speciosa*** (J. F. Gmel.) A. Rich., see *Stenorrhynchus speciosum*.

O ***Spiranthes stolonifera*** Ames & Correll, see *Schiedeella stolonifera*.

O ***Spiranthes tonduzii*** Schltr., see *Mesadenella petenensis*.

C ***Spiranthes torta*** (Thunb.) Garay & Sweet, Fl. Lesser Antilles 77. 1974. *S. tortilis*. Iz. 0 to 1000 m. T, open meadows and pine forest.

O ***Spiranthes tortilis*** (Sw.) Rich., see *S. torta*.

O ***Spiranthes trilineata*** Lindl., see *Schiedeella trilineata*.

O ***Spiranthes trilineata* var. *thelymitra*** (Rchb.f.) L. O. Williams, see *Schiedeella trilineata*.

Spiranthes vernalis Engelm. & A. Gray, AV, Cm, Gu, Hu, To, Za. 1700 to 3100 m. T, open grassy areas. See also *S. nebulorum*. Differs from all other Guatemalan *Spiranthes* in having the inflorescence stalk densely pubescent.

* ***Stanhopea* aff. *costaricensis*** Rchb.f., Hamb. Garten-Blumenzeit. 16: 424. 1860. AV, BV, Za. 900 to 1700 m. E, mixed oak-pine and broadleaf humid forest. AV, Senahú, May 1983, *Dix 83-33* (UVAL). Distinguished by double bump on hypochile.

Stanhopea ecornuta Lem., AV, Iz, Pe. 0 to 1200 m. E, very warm, very humid forest.

C ***Stanhopea graveolens*** Lindl., Bot. Reg. n.s. 3: misc. 59. 1840. As *S. wardii*. AV, BV, Cm, Pr, Qc, Za. 1000 to 2000 m. E, L, humid forest. Pr, road to Piedad, Sierra de

las Minas, 1100 m, 11 Dec. 1984, *Dix 6204* (UVAL); Za, near San Lorenzo, Sierra de las Minas, 1300 m, *Dix 6219* (UVAL). Distinguished by massive short hypochile.

* ***Stanhopea inodora*** Lodd. ex Lindl., Bot. Reg. 31: t.65. 1845. AV, BV, Pe, Su. 0 to 1200 m. E, dense evergreen forest. Cited for Belize by Catling and Catling (1988). Su, Finca Panamá, Sta. Bárbara, *Dix 77-31* (UVAL). Several specimens seen in cultivation in Salamá, BV. Flowers pale, with ivory markings, longer hypochile, no bumps, chocolate or vanilla odor.

C ***Stanhopea*** × ***lewisae*** (Ames & Correll) Horich ex Jenny, Die Orchidee 36: 6. 1988. As *S. lewisae* Ames & Correll. Iz. 0 to 100 m. E, very humid forest. A natural hybrid of *S. ecornuta* with *S. inodora*.

Stanhopea oculata (Lodd.) Lindl., AV, BV, Su, Re, Za. 800 to 1500 m. E, L, dry to humid, broadleaf forest.

Stanhopea saccata Bateman, Es, Ju, SR, Su, Za. 800 to 1400 m. E, dry to humid oak forest. Broad horns.

O ***Stanhopea wardii*** Lodd. ex Lindl., excluded species, see *S. graveolens*.

C ***Stelis aemula*** Schltr., *S. perplexa*. AV, Cq, Iz, Pe. 0 to 900 m. E, warm forest.

C ***Stelis argentata*** Lindl., Bot. Reg. 28: Misc. 64. 1842. *Stelis endresii* Rchb.f., 1000 to 1900 m. AV, BV. E, bushes and trees in humid forest.

P ***Stelis barbata*** Rolfe, see *S. microchila*.

Stelis bidentata Schltr., AV, Gu, Su. 900 to 1800 m. E, humid forest.

* ***Stelis chiapensis*** Solano, Orquídea (Mexico) 13: 23. 1993. Su. 1300 to 1800 m. E, mid-elevation, broadleaf forest with *Quercus*. Differs from *S. purpurascens* and *S. vespertina* in having glabrous sepals, long inflorescences with 45 to 90 flowers. Su, Volcán de Atitlán, May 1973, *Dix 7468* (UVAL).

Stelis chihobensis Ames, AV. 800 to 1200 m. E, warm forest.

Stelis ciliaris Lindl., AV, Cm, Iz, Pe, Za. 0 to 1000 m. E, very humid, warm forest.

Stelis cleistogama Schltr., AV, Cq, Gu, Ja, Za. 1800 to 2300 m. E, cloud forest.

Stelis despectans Schltr., AV, BV, Cq, Ja, Ju, Za. 1500 to 2200 m. E, cool, very humid, mixed forest.

O ***Stelis endresii*** Rchb.f., see *S. argentata*.

C ***Stelis fulva*** Schltr., Beih. Bot. Centralbl. 36: 388. 1918. As *S. purpurascens* in part. AV, BV, Iz, Za. 300 to 1500 m. E, humid forest. Plants less than 30 cm tall, leaves narrow, 10 to 20 mm wide.

Stelis gracilis Ames, AV, Pe, Su. 800 to 1100 m. E, dense, warm humid forest.

Stelis guatemalensis Schltr., AV, BV, Hu, Su, Za. 800 to 2100 m. E, humid oak-pine, cloud forest, or very humid, broadleaf forest.

Stelis hymenantha Schltr., AV, BV, Cq, Hu, Iz, Qz, SM, Su. 600 to 2800 m. E, humid cloud forest.

Stelis johnsonii Ames, AV. 300 to 1000 m. E, warm, humid forest.

Stelis leucopogon Rchb.f., Qz, Re, So, Su. 1000 to 1500 m. E, humid forest.

Stelis microchila Schltr., AV, BV, Hu, Su, Za. 900 to 1800 m. E, very humid forest, broadleaf or mixed oak-sweet gum. Illustrated as *S. barbata* Rolfe by Hamer (1981).

Stelis ovatilabia Schltr., AV, BV, Cm, Es, Gu, Pr, Qz, Re, So, Su, Za. 1250 to 2800

m. E, mixed oak-pine and cloud forest. Thick leaves.

C ***Stelis oxypetala*** Schltr., *S. rubens var. oxypetala*. AV, Pe. 0 to 1000 m. E, warm, humid forest.

* ***Stelis pardipes*** Rchb.f., Beitr. Orch. Centr. Amer. 96. 1866. AV, BV. 800 to 1700 m. E, very humid dense forest. BV, Purulhá, Luer & Dix, Feb. 1980 (SEL); AV, above Senahú, Feb. 1980, *Luer & Dix 6330* (SEL).

Stelis parvula Lindl., AV. 200 to 1600 m. E, humid forest.

O ***Stelis perplexa*** Ames, see *S. aemula*.

Stelis purpurascens A. Rich. & Galeotti, AV, BV, Cq, Es, Gu, Ja, Ju, Qc, Qz, SR, Su, Za. 600 to 2000 m. E, humid forest. See also *S. chiapensis*, *S. fulva*, and *S. vespertina*.

Stelis rubens Schltr., AV, Iz. 0 to 1100 m. E, warm, humid forest.

O ***Stelis rubens* var. *oxypetala*** (Schltr.) Ames, see *S. oxypetala*.

Stelis tenuissima Schltr., Qz. 2000 to 2300 m. E, very humid, cloud forest.

* ***Stelis transversalis*** Ames, Bot. Mus. Leafl. 2: 91. 1934. AV. 500 to 1500 m. E, warm, very humid forest. AV, "near Cobán," coll. E. Ruiz, 1983, *Dix 7499* (UVAL).

* ***Stelis vespertina*** Solano & Soto Arenas, Orquídea (Mexico) 13: 107. 1994. Qc, SM. 1600 to 2000 m. E, very humid, cloud forest. Qc, bei Jocopilas, 2000 m, June 1884, *Lehmann 1573* (K). Differs from *S. purpurascens* and *S. chiapensis* in having larger flowers, 7 to 10 mm in diameter, and floral bracts 20 to 45 mm long, leaves up to 35 mm wide.

* ***Stellilabium boylei*** J. T. Atwood, Icones Plantarum Tropicarum pl. 1392. 1989. AV. 1300 m. E, terminal twigs in tops of trees, very humid, cloud forest. AV, Quixal, nr. San Cristobal Verapaz, Feb. 1979, *Dix 4055* (UVAL).

C ***Stenorrhynchos aurantiacum*** (La Llave & Lex.) Lindl., Gen. & Sp. Orch. Pl. 479. 1840. *Spiranthes aurantiacum*. Gu, Cm, Hu, Sa, SR, Za. 1200 to 2500 m. T, meadows, grassy slopes and ravines with open forest, in full sun.

C ***Stenorrhynchos speciosum*** (Jacq.) Rich. ex Spreng., Syst. Veg. 3: 709. 1826. *Spiranthes speciosa*. AV, BV, Cm, Gu, Ju, Pr, Qc, Za. 1200 to 3000 m. E, humid oak-pine forest.

* ***Teuscheria pickiana*** (Schltr.) Garay, Rhodora 61: 41. 1959. AV, Iz, Pe. 800 to 1200 m. E, broadleaf, warm, humid forest. Pe, Tanhoc, Poptún, 1000 m, col. C. Porter s.n., Mar. 1982, *Dix 6799* (UVAL).

Trichocentrum candidum Lindl., AV, Es. 800 to 1000 m. E, dry to humid forest.

* ***Trichopilia galeottiana*** A. Rich., Ann. Sci. Nat. Bot. Ser. 3: 26. 1845. AV. 700 to 1000 m. E, very humid, warm forest. AV, near Chisec, *Dix 6789* (UVAL).

Trichopilia tortilis Lindl., AV, BV, Cq, Es, Gu, Iz, Ju, Pe, Pr, Qz, Su, Za. 200 to 1900 m. E, humid forest.

C ***Trichosalpinx blaisdellii*** (S. Watson) Luer, Phytologia 54: 394. 1983. *Pleurothallis blaisdellii*. AV, BV, Gu, Iz, Pe, Sa, SR. 0 to 1200 m. E, dry to humid, lowland forest.

* ***Trichosalpinx cedralensis*** (Ames) Luer, Phytologia 54: 394. 1983. *Pleurothallis broadwayi* in part. AV, BV, Ja, Za. 500 to 2400 m. E, humid cloud forest. Grows vertically, leaf surface textured, yellow flowers. BV, Purulhá, 5 Aug. 1974, *Dix 204* (UVAL).

C ***Trichosalpinx ciliaris*** (Lindl.) Luer, Phytologia 54: 394. 1983. *Pleurothallis*

ciliaris. AV, BV, Iz, Pe, Za. 0 to 1300 m. E, dry to humid, lowland forest.

C ***Trichosalpinx crucilabia*** (Ames & Correll) Luer, Phytologia 54: 395. 1983. *Pleurothallis crucilabia*. Gu. 1800 to 2400 m. E, humid, oak forest.

C ***Trichosalpinx dura*** (Lindl.) Luer, Phytologia 54: 395. 1983. *Pleurothallis broadwayi* in part. AV, BV, Gu. 1500 to 2400 m. E, pendent in humid forest. Smooth, flat leaves, white flowers.

* ***Trichosalpinx memor*** (Rchb.f.) Luer, Phytologia 54: 396. 1983. Su. 1800 m. E, evergreen, cloud forest. Described by Soto-Arenas (1987) as *T. greenwoodiana*. Su, slopes of Volcán Atitlán, 24 Apr. 1979, *Dix 6212* (UVAL).

C ***Trichosalpinx pringlei*** (Schltr.) Luer, Phytologia 54: 396. 1983. *Pleurothallis pringlei*. Qz. 1200 to 2300 m. E, mixed, humid forest. Qz, Fuentes Georgina, 18 Jan. 1979, *Dix 6173* (UVAL).

* ***Trichosalpinx trachystoma*** (Schltr.) Luer, Phytologia 54: 397. 1983. AV, Su. 350 to 1000 m. E, warm, humid, lowland evergreen forest. Similar to *T. blaisdelli*, but with smaller subglobose flowers. The lateral sepals form a deeply concave, cymbiform synsepal. Su, Patulul, 1981, S. Solano s.n., *Luer 5844* (SEL); AV, near Cubilguitz, 950 m, col. Ibañez s.n., *Luer 14873* (MO).

C ***Trichosalpinx triangulipetala*** (Ames & Correll) Luer, Phytologia 54: 397. 1983. *Pleurothallis triangulipetala*. Sa. 1800 m E, humid, oak forest.

Trigonidium egertonianum Bateman ex Lindl., AV, Hu, Iz, Pe, Qz, Sa, Su, Za. 0 to 1200 m. E, T, warm, dry to humid forest.

Triphora cubensis (Sw.) Ames & Schltr., Za. 1300 to 1900 m. T, deep humus, pine forest. Corymbose inflorescence and abbreviated leaves.

Triphora trianthophora (Sw.) Rchb.f., Cm, Gu, Hu, Ja, Qz, Sa, So. 1800 to 3400 m. T, dense, cool, oak or oak-pine forest. Crenulate lip margin.

Tropidia polystachya (Sw.) Ames, 0 to 500 m. AV, Pe. T, rocky soils, woods and shady slopes.

O ***Vanilla hartii*** Rolfe, see *V. odorata*.

Vanilla inodora Schiede, includes *V. pfaviana* Rchb.f., BV, Es, Hu, Iz, Re, SM, Su. 300 to 1500 m. Climber, coffee plantations and rocky wooded slopes.

C ***Vanilla odorata*** C. Presl, Rel. Haenk. 101. 1827 (1830). As *V. hartii*. Iz, Pe. 0 to 400 m. Climber, humid, low-elevation forest.

O ***Vanilla pfaviana*** Rchb.f., see *V. inodora*.

Vanilla planifolia Jacks. ex Andrews, AV, Iz, Pe, Su. 0 to 600 m. Climber, very humid, swamp forest.

Vanilla pompona Schiede, Iz, Pe. 0 to 1000 m. E, humid forest.

Warrea* aff. *costaricensis Schltr., AV, Pe. 200 to 700 m. E, roadsides, warm humid forest. AV, Cubilguitz, 600 m, Apr. 1979, *Dix 7947* (UVAL).

Wullschlagelia aphylla (Sw.) Rchb.f., Av, Iz, Pe. 0 to 1200 m. T, saprophyte, humid forest and pastures.

Xylobium elongatum (Lindl. & Paxton) Hemsl., AV, BV, Iz, Ju, Pe, Za. 200 to 1300 m. E, very humid, warm forest.

Xylobium foveatum (Lindl.) G. Nicholson, AV, BV, Za. 1000 to 1400 m. E, humid forest.

Xylobium sulfurinum (Lem.) Schltr., AV, BV, Cm. 1200 to 3000 m. E very dense, humid forest. *Xylobium tuerckheimii* is a synonym.

O ***Xylobium tuerckheimii*** Kraenzl., see *X. sulfurinum*.

O ***Zygopetalum grandiflorum*** (A. Rich.) Benth. & Hook. ex Hemsl., see *Galeottia grandiflora*.

APPENDIX I: DOUBTFUL OR UNCONFIRMED SPECIES

These are species whose identification is uncertain or whose distributions suggest that they occur in Guatemala.

Bletia edwardsii Ames, Proc. Biol. Soc. Wash. 45: 1. 1932. Cited by Hamer (1989) as from Guatemala, described from Honduras, no other Guatemalan specimens known. In contrast to *B. campanulata*, this species has a differently shaped lip with bilobed apex and larger midlobe.

Bletia tenuifolia Ames & C. Schweinf., Bot. Mus. Leafl. 10: 6. 1933. Included by A & C for Belize, but this was based on a specimen of *E. bractescens*. M. Soto-Arenas (pers. comm.) collected this species in Chiapas, 2 km from Guatemala.

***Chysis* sp.** AV. Plant found by the Archila family represents an undescribed species, *Dix 6834* (UVAL).

Dracula erythrochaete (Rchb.f.) Luer, Selbyana 2: 195. 1978. *Masdevallia erythrochaete*. 800 to 1200 m. E, very humid forest. No specimen seen from Guatemala, but cited by A & C.

Encyclia fragrans (Sw.) Lemée, *Epidendrum fragrans*. Cited in A & C, but not identified in recent collections, although valid specimens exist for southern Mexico. Specimens we have seen from Guatemala are *E. radiata* or *E. chacaoensis*.

Encyclia lancifolia (Pav. ex Lindl.) Dressler & G. E. Pollard, Phytologia 21: 437. 1971. 300 to 1500 m. E, pine-oak or oak forest. Known from Chiapas-Guatemala border. Type of *E. lancifolia* is actually *E. cochleata* (Soto-Arenas, pers. comm.).

Epidendrum alabastrialatum G. E. Pollard ex Hágsater, Orq. (Mexico) 7: 19. 1978. Reported from Mexico and Nicaragua. May occur in Guatemala, but no records known to us.

Epidendrum parkinsonianum* var. *falcatum (Lindl.) Ames, F. T. Hubb. & C. Schweinf. Current name is *E. falcatum*. We have seen no material referable to this species. A & C cited collections from Quiche and "Guatemala."

Hexisea imbricata (Lindl.) Rchb.f., Ann. Bot. Syst. 6: 470. 1923. *H. bidentata*. AV. 300 to 1200 m. E, trees, forest and coffee plantations. Cited by A & C, cited for Chiapas by M. A. Soto (1988). Only specimen seen in Guatemala is cultivated by Lizama and may have been from Playa Grande, AV.

Lepanthes costaricensis Schltr. New material needs to be examined to confirm presence in Guatemala.

Ligeopila clavigera (Rchb.f.) Garay, Bradea 2: 193. 1977. T, humid, shady forest. Known from Mexico throughout Central America, should occur in Guatemala.

Lycaste aromatica (Graham ex Hook.) Lindl., 0 to 1400 m. E, warm humid forest. No correctly identified specimen of this species has been seen from Guatemala. All correspond to *L. cochleata* or *L. suaveolens*. However, range is said to be Mexico to Nicaragua, and valid specimens have been seen from Honduras.

Lycaste saccata A. Rich., Portef. Hortic. 2: 149. 1848. Cited for Guatemala by Kennedy (1979). Status of this taxon is unclear.

Lycaste sulphurea Rchb.f., Gard. Chron. 17: 218. 1880. Ja. 1250 m. Status of this taxon is unclear: may be a natural hybrid, or a good species related to *L. cruenta*, from which it differs in having a long, relatively slender column. The lip is similar to *L. cruenta* but lacks the red basal indentation.

Ja, near Esquipulas, 1250 m, Apr. 1983, *Dix 4889* (UVAL) fits this concept.

Maxillaria mooreana Rolfe, known from Guyana and Brazil. Type specimen was recorded as from Guatemala.

Maxillaria rhombea Lindl., Bot. Reg. 26: sub.t. 12. 1840. *M. cucullata* in part. Hu. 2000 to 2600 m. E, humid, pine-oak forest. Type from Oaxaca, differs from Guatemalan specimens that have been called *M. rhombea*, suggesting that a different species is represented in Guatemala.

Mormodes aromatica Lindl., known from El Salvador, Mexico, and Honduras. Should occur in Guatemala.

Oncidium nebulosum Lindl., Qc. 2100 m. E, humid forest. *Nomen obscurum.* Described from Guatemala. One specimen seen by us from Nebaj fits this description, may represent variations of the species currently known as *O. fasciculatum*.

Paphinia cristata Lindl., Za. 1000 m. E, warm, humid forest. Cited in A & C as a Schlechter record, not found recently.

Pleurothallis gelida Lindl., Pe. 250 m E, humid tropical forest. Pe, near Dolores, *Contreras 2517* (F). This is a vegetative specimen without flowers, may represent *Pl. convallaria*, which occurs in Guatemala.

Pleurothallis plumosa Lindl., up to 1000 m. E, no records known to us. Cited by A & C as a Schlechter record for Guatemala. Illustrated by Hamer (1990) from Honduras.

Pleurothallis ruscifolia (Jacq.) R. Br., 0 to 1850 m. E, L, humid to dry forest. Cited by A & C as a Schlechter record for Guatemala. No valid records known to us.

Pleurothallis vittata Lindl., see *Pl. pubescens*.

Prescottia cordifolia Rchb.f., Edward's Bot. Reg. 22: sub.t. 1916. 1836. Known from El Salvador border. Likely to occur in Guatemala.

Stanhopea radiosa Lem., Ill. Hort. 6: Misc. 72, fig. 1,2. 1859. This species, similar in form to *S. saccata* but with narrow, almost terete horns, is believed to occur in southern Chiapas. If so, then it is probably also present in Guatemala.

Stanhopea ruckeri Lindl., Bot. Reg. 29: 44. 1852. According to Dodson (pers. comm.), this species is similar to *S. inodora* but has very dark, large flowers.

Triphora debilis Schltr. Re. 1600 m?. T, deep humus, humid forest. May be subspecies of *T. trianthophora*. Type locality is Guatemala.

Triphora mexicana (S. Watson) Schltr., Repert. Spec. Nov. Regni Veg. Beih. 17: 139. 1921. *T. trianthophora* in part. T, humid forest. Cited by Hamer (1990). May be subspecies of *T. trianthophora*; however, lip has three keels and is narrower and smaller than latter species.

Xylobium brachypus (Rchb.f.) Hemsl. We have seen no material of this species. Guatemala is type locality. May be synonym of *X. foveatum*.

APPENDIX II: EXCLUDED SPECIES

These are species whose citation in A & C either was based on misidentification or the locality data were in error.

Barkeria uniflora (La Llave & Lex.) Dressler & Halb., Orquídea (Mexico) 6: 248. 1977. *Barkeria elegans*. Endemic to Mexico.

Bletia ensifolia L. O. Williams, Hu. According to M. Soto-Arenas, this is a narrow endemic of NW Mexico.

Bletia reflexa Lindl., see *B. jucunda*. This species is a Mexican endemic on Pacific slopes from Michoacán to Oaxaca (Sosa, 1994).

Brassavola acaulis Lindl. & Paxton. Cited by A & C based on Schlechter observation. However, no specimens from Guatemala have been seen. N. Williams (pers. comm.) stated that it is a Costa Rican and Panamanian species.

Cattleya deckeri Kraenzl. Dressler (1998) has argued that this is a form of *Cattleya* × *guatelmalensis*.

Cattleya granulosa Lindl., South American species cited in error by A & C.

Cattleya pachecoi Ames & Correll, a form of *Cattleya* ×*guatemalensis*.

Chysis aurea Lindl., South American species, see *C. laevis*.

Coryanthes speciosa (Hook.) Hook., see *Coryanthes picturata*. *C. speciosa* is a Brazilian species.

Cranichis cucullata Schltr., *C. cucullata* is an Ecuadorian species.

Cycnoches warscewiczii Rchb.f., citation in A & C for Guatemala is based on identification error.

Dryadella simula (Rchb.f.) Luer, Selbyana 2: 209. 1978. *Masdevallia simula*. An Andean species. Specimens referred to this species are probably *Dryadella linearifolia*.

Dichaea muricata (Sw.) Lindl., specimens cited by A & C are *D. muricatoides*.

Encyclia candollei (Lindl.) Schltr., Die Orichideen 24. 1914. *Epidendrum candollei*. Cited by A & C, *Steyermark 46383a* (F), from Guatemala. No other report known to us, probably represents *E. aromatica*.

Encyclia subaquilina (Lindl.) Nir, Lindleyana 9: 147. 1994. Type attributed to Guatemala or Mexico. Specimens known from Jamaica.

Encyclia trachycarpa (Lindl.) Schltr. Known only from Jalisco, Mexico. A & C citation is in error.

Epidendrum collare Lindl. Represented from Guatemala only by the type collection, locality in error, is an Ecuadorian species.

Epidendrum difforme Jacq. This species is confined to the Antilles. See *E. chlorocorymbos, E. dixorum, E. melistagum, E. mittelstaedti*.

Epidendrum ibaguense HBK, see *E. radicans* Pav. ex Lindl.

Epidendrum ramosum* var. *angustifolium (Cogn.) L. O. Williams. This is *E. antillana* Hágsater & Ackerman, which is restricted to the Antilles. The specimens cited for Guatemala are *E. acunnae*.

Epidendrum ramosum* var. *lanceolatum Griseb., see *Epidendrum acunnae*.

Lepanthes pachyphylla Luer & Behar, Lindleyana 5: 193. 1990. Qz. See *L. oreocharis*.

Lepanthes turrialvae Rchb.f., see *L. scopula*.

Lycaste candida Lindl. ex Paxton. Costa Rican species.

Lycaste tricolor (Klotzsch) Rchb.f., Costa Rican species. The specimen, cited by A & C as from Guatemala: AV, Sepacuité, *O. F. Cook 118* (US), with a Schlechter determination, is actually *Lycaste cochleata*.

Mormodes histrio Lindl. & Rchb.f., synonym of *M. lineata*.

Mormodes skinneri Rchb.f., Costa Rican endemic.

Mormodes stenoglossum Schltr. Synonym of *Mormodes flavida*, species restricted to Costa Rica.

Oncidium nanum Lindl., see *O. lindenii*. *O. nanum* is a Brazilian species.

Oncidium oblongatum Lindl. All specimens cited by A & C are referable to *O. fasciculatum*.

Oncidium phymatochilum Lindl. A Brazilian species.

Oncidium reflexum Lindl. Cited in error by A & C. Specimen was probably *O. suttonii*. *O. reflexum* is endemic to Mexico.

Oncidium stelligerum Rchb.f. Does not occur south of Oaxaca.

Ponera macroglossa Rchb.f., synonym of *P. striata*.

Rhynchostele cervantesii (La Llave & Lex.) Halb., *Odontoglossum cervantesii*. Known only north of Isthmus of Tehuantepec.

Spiranthes graminea Lindl. Cited by Williams (1956) and Hamer (1990) as from Guatemala, not recorded by us, not cited by A & C. According to Catling and Catling (1988) this species does not extend to Guatemala; cited specimens are referable to *Spiranthes nebulorum or S. obtecta* (q. v.).

Stanhopea devoniensis Lindl. Cited by A & C, synonym of *S. hernandezii*, which is from Cuernavaca, Mexico.

Stanhopea quadricornis Lindl. Cited in error by A & C. Natural hybrid from Venezuela.

Stanhopea wardii Lodd. ex Lindl. Costa Rican species.

Stelis barbata Rolfe, see *S. microchila*.

Trichopilia maculata Rchb.f. Not found north of Costa Rica. Probably was confused with *T. galeottiana*.

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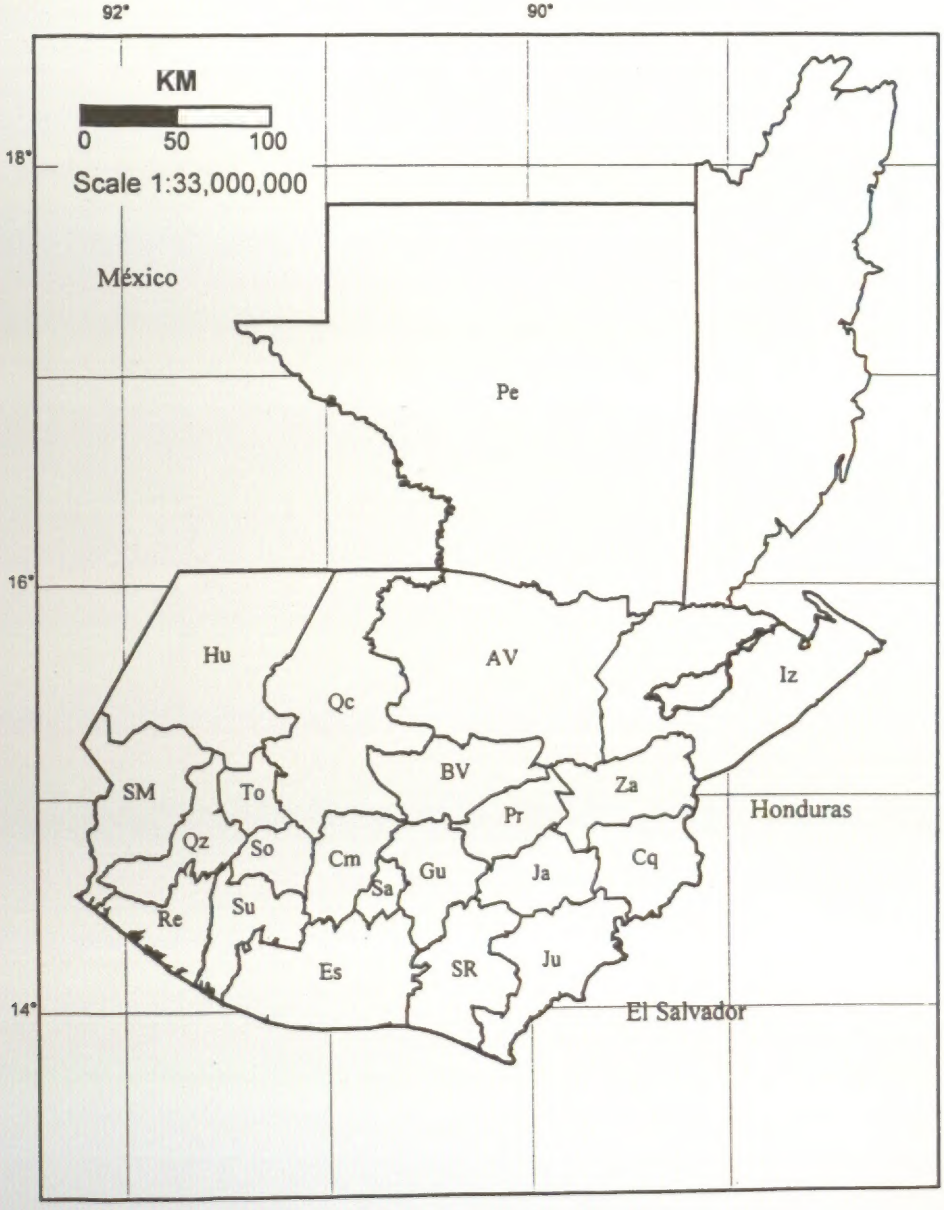
Departments in Guatemala are abbreviated as follows:

AV = Alta Verapaz
BV = Baja Verapaz
Cm = Chimaltenango
Cq = Chiquimula
Es = Escuintla
Gu = Guatemala
Hu = Huehuetenango
Iz = Izabal
Ja = Jalapa
Ju = Jutiapa
Pe = Petén
Pr = El Progreso
Qc = Quiché
Qz = Quetzaltenango
Re = Retalhuleu
Sa = Sacatepéquez
SM = San Marcos
So = Sololá
Su = Suchitepéquez
SR = Santa Rosa
To = Totonicapán
Za = Zacapa



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